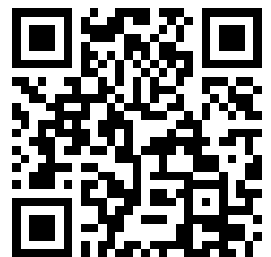

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VOL. IV.—No. 49.

A RETROSPECTIVE VIEW.

WAITING on the threshold of a new year, we cast a parting glance at its predecessor before its final retirement, in obedience to the mandate of old "Father Time," from the field of materiality into the realms of memory. To be a year older is, or ought to be, a year wiser. We must therefore assume, that we can present some additional fruits of experience acquired during that last past, and record some further advance in "the march of improvement." In this assumption we are justified, but while congratulating our countrymen generally and fellow-citizens especially thereon, we must not be understood to convey a license for "rest on the oars," but rather, that the cheering reflection of having progressed *some* steps, and surmounted *some* difficulties that heretofore bestrewed our path, should afford an incentive to increased exertion to accomplish *much more* in time to come. One of the most important topics discussed, was that which had remained over from last year—and in our *resumé* at the expiration of 1860 was referred to—viz., the *water supply* to this city. Perhaps no project referring to a local improvement was ever so thoroughly investigated in all its features, both by advocates on the one hand, or opponents on the other; but difference of opinion elicits argument, and argument in its turn leads to the elucidation of theories which, however contrary to each other, nevertheless are suggestive and instructive; so we are therefore, on principle, not disposed to regret the opposition in this case, though we should have been pleased to see less personal animosity accompanying. We published very fully the proceedings, and we need not now follow them, especially as the project has successfully surmounted the first impediments to a consummation. The thanks of the Dublin citizens and their posterity are due to Dr. Gray especially, for the immense energy and labour, combined with great ability, by him brought to bear in the development of the scheme, and to his colleagues (Alderman Roe, the late Alderman Kinahan, and Mr. Francis Codd) likewise. In our periodical "*Notes of Works*" we have carefully chronicled the projection or completion, as the case may be, of various structures, not only in Dublin, but throughout Ireland; the majority of the items, however, as a reference will convince, are of a less important character than we had the pleasure of noting previously, and chiefly relate in our own case to minor improvements, new shop fronts, &c., and to buildings of a domestic character in the suburban districts. Unimportant as many of these may have seemed to be, taken individually, they are really not so in the aggregate, marking, as they do, a decided progress in our street architecture, and a manifest extension of the numerous wings of the metropolis. We particularised very specially the growth of Rathmines, wherein green fields but a few years since have with wonderful rapidity been metamorphosed into populous districts. The township, which is excellently watched over by energetic and worthy Commissioners, now embraces in its sphere of improvement the adjoining districts of Harold's-cross, Rathgar, Ranelagh, Sandford, and Clonskeagh, and is well lighted and watered, and the roadways preserved in admirable order, under the direction of the Commissioner's own efficient surveyor, Mr. Johnston. In the area between the junction of Rathgar, with Rathmines and Harold's-cross roads, and thence to Roundtown, the largest amount of progress is comprehended. Villas detached and semi-detached, cottage residences, and terraces in various designs and styles here stud the soil, and the several roads and approaches seem to have been laid out with much judgment. We may here remark, that an impetus was first given to the improvement of this particular section of the township, by the enterprise of Messrs. Bentley, who, by an energetic application of the same element, have also created, out of a bare district at Foxrock, what sooner or later will, doubtless, become an independent township, and, we trust, a valuable property. The indispensable accompaniment to the extension of a neighbourhood—viz., increased church accommodation—is here visible, for, as before noticed, a new building for Established Church persuasion (Gold's bequest), another for Presbyterians, another for Baptists, and another for Roman Catholics, have been erected. All of these more or less present some notable architectural features except the last—*except the last!*—but our opinions of its unsightliness and unsuitableness for a church of the 19th century being already communicated, we will not dwell further on a subject necessarily painful, and particularly

so where we believe the error to be in the *judgment*, and not in the *intention*. An improved water supply has also here been some time under deliberation, and no doubt will be effected. Before leaving this locality, we must express a regret that the bridge at Kilmoundestown is allowed to remain in its present state, which, by its construction, is replete with impediments to the general traffic, and with danger to the travellers thereon, and lastly is of too cumbrous and antiquated a character externally. This removed, and a spacious suitable structure of moderate architectural merit substituted, a similar event—likewise much to be desired—would follow where the roadways to Ranelagh and Harold's-cross respectively cross the canal. Passing eastward, Kingstown and Monkstown can hardly be regarded as keeping pace with the expectations reasonably to be had from a neighbourhood so favourably circumstanced in all matters appertaining to public convenience, and possessing moreover such scenic beauty. The cause is attributed to the railway company who lease the line, and who also being owners of a partly rival road, are interested in affording increased facilities to the latter, consequently deteriorating the former. We believe that the representations of the inhabitants, to this effect, met with every courteous consideration, and that many objections complained of will be remedied during the coming season; but we see no reason why the new Omnibus Company, or the Steam Packet Company either, should not pursue a career of usefulness devoid of antagonistic spirit. The immediate township of Kingstown itself is almost fully built on, but towards Glasthule, Bullock, &c., numerous most desirable sites are still available, and we should be pleased to see the demand for their occupation greater. At Dalkey some domestic structures have recently sprung up, but the town generally wears a neglected aspect. Most of the positions, from which unrivalled marine landscapes are presented, are occupied with cottages generally of a poor character. At the turning point of the hill towards Killiney—viz., Vico-road—the thoroughfare is built across by a wall, to the manifest disadvantage of the neighbourhood, and the very great inconvenience of the public. We cannot conceive what short-coming would suggest such an act, but we are informed that remonstrance is likely to prove useless. We say "try again," and *again*, and *again*; moral agitation has accomplished wonders, and *may* succeed here likewise.

Along the route to Bray, at Killiney and Ballybrack on the Kingstown line, and Shankhill, Carrickmines, &c., on the Wicklow line, there have been various recent architectural acquisitions, and the geology of the district offers peculiar facilities for building speculations. At Bray the progress has been literally gigantic; houses here, there, everywhere; hotels of monster form have been erected to provide suitable accommodation for the swarms of visitors that arrive during the season, and one "more monster still" is approaching completion by an enterprising capitalist. Of this, however, and various other matters connected with Bray we shall have occasion presently to speak more in detail. To Clontarf we directed attention *so often*, and with *so little effect*, that it is almost useless to refer to it, further than to note that somebody really *has* succeeded in making terms with "the lord of the soil" for the plot between the chapel-house and the police-barrack, and that two houses are being erected thereon. The construction of the proposed road from the Clontarf main thoroughfare to the Howth road seems to be adjourned *sine die*. Regarding other localities we cannot present a very cheering picture, still there are some occasional instances of enterprise, and the general tendency is rather progressive than retrograde.

Having completed this brief survey of the suburbs, we turn our eyes again nearer home. The business streets have an aspect of prosperity; they are better and more permanently paved, and have more spacious pathways than hitherto; the private streets and squares are more populously tenanted, and increase of rents evidences increased demand for dwellings. The sewerage system is, on the whole, better, but by no means perfect; and we must always take exception to that wherein the refuse of a populous city is directed into a river flowing through its centre, and manufacturing poisonous gases. The contents of the sewers might, with proper application, be converted into "heaps of gold," and without any supernatural power either; yet, by a delusive theory, not only the good is lost, but ills are engendered. Our sanitary state, however, is one of *remarkable deficiency*, and, in fact, no material progress has been made therein during the year. Numerous minor streets and lanes are in a most filthy condition, to the manifest detriment not only of the immediate inhabitants, but the citizens generally. To various other towns the same remark applies, but as we purpose taking a comprehensive survey of the principal, we leave the subject for the present. Of public buildings we have little to add, as having actually been commenced within the year; but the preliminary operations connected with the new Augustinian Church,* John-street, and the Unitarian Church, Stephen's-green, being in a state of forwardness, we may view

* See page 869.

* Illustrated in the DUBLIN BUILDER for May, 1861.

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then under that head. The former, which reflects the highest credit on its designer, Mr. Ashlin, will be, perhaps, the most important Gothic edifice in the city, but would have contributed more to its beautification were the site more central.

In this regard the latter is more fortunately circumstanced, being on the direct line of a most important thoroughfare, Stephen's-green, west; and its development will, no doubt—as the first church work in Dublin of the architects, Messrs. Lanyon, Lynn, and Lanyon—be looked forward to with much interest both by the profession and the public. The name of this firm has been for years identified with the well-known progress of Belfast, whose Mayor—the first architect Mayor in Ireland—the senior partner is this year. On none will the civic dignity—or any other that as a probable consequence during an eventful period may follow—sit more gracefully. Apropos to both these matters, we must now ask, what about the rebuilding of St. Andrew's Church, Mr. Lynn's design for which was so justly and universally admired? We apprehend that ambition brought its general results in this case, and that there must have been a serious miscalculation of the Committee's resources, if the comparatively unpretending structure, as now proposed, according to a plan by the architects to the Ecclesiastical Commissioners, is intended as a substitute for that originally adopted in the competition. We hope to see the affair settled one way or the other at once, for in its present state it is discreditible, and most unsatisfactory to the parishioners. While on the department of "churches," we again take occasion to refer to the important works at St. Patrick's Cathedral, carried on during the year at the sole expense of Mr. Benjamin Lee Guinness, detailed accounts of which have appeared in previous numbers.

Although one new bridge in lieu of a very hideous predecessor has been completed, the general insufficiency of our bridge accommodation is becoming a subject of notoriety, and we are just at the point when it will receive its final exposition, and the sense of the citizens be taken thereon. Since Carlisle and Essex-bridges were built, the traffic of the respective thoroughfares leading thereto has trebled, and they are both (the former especially) quite inadequate to that of the present day. Let us suggest, that the promoters should bear in mind the error above alluded to in the case of Andrew's Church, and not grasp at too much, but completing one part of the project *first*, work the other out *afterwards*.

We notice, with much pleasure, a growing appreciation for the memory of deceased notabilities in the "memorials" about to be placed in our city, and which, as works of high sculptural art, will be great acquisitions. The site for "the Crumpton" memorial has been decided on in Great Brunswick-st., where D'Olier-street and College-street unite therewith; that of the Eglinton will most probably depend on the amount of the subscriptions and the consequent character of the work, and that of Oliver Goldsmith, for which we shall be looking shortly, is destined to rest in the enclosed area in front of "Old Trinity." Of the late Sir Henry Marsh, M.D., and Dr. Cusack, marble busts, for conspicuous display, are also being prepared. Although no step has yet been taken to pay a similar most fitting tribute to the personage whose recent untimely withdrawal from the scene of his eminent labours in the cause of social and artistic progress, must be regarded as a national affliction and loss, yet we have good reason to assume, that the proverbial kind spirit of the Irish people, and their generous sympathy with their beloved Queen in her bereavement, combined with their universal admiration of the deceased, will suggest the desirability of such a memorial before *all others*.

We judged that the year 1861 would not have passed without some tangible measures being adopted for the improvement of our market accommodation, yet it is so. On the question of the desirability or not, of removing the site of Smithfield to the North Wall we will not now enter, but again beg to add to our frequently expressed opinion of the disgraceful state of the markets—or rather places used as such—in this city, a hope that the present year will not be permitted to lapse without something being done to remedy it.

A project for the union into a central terminus of all the lines of railway branching from this city has been originated, but, however favourably we might be disposed to regard it in a utilitarian light, we could not countenance the disfigurement of our principal thoroughfares inevitably resulting therefrom. Most probably the Corporation will strenuously oppose it, if laid before Parliament, though we surmise that the comprehensiveness of the scheme for the probable resources of the promoters will be found fatal to its even reaching that stage. In connection with this—as well as irrespective—tramways are proposed, a system of locomotion desirable under certain circumstances, and not so under others. The Liffey branch line has been energetically pushed forward by the contractors, and is progressing towards completion. This is a work of great commercial utility and public convenience. We must now pause, but in future numbers of the present series we shall return to many of the topics above adverted to, and our chief

towns—viz., Belfast, Cork, Limerick, Waterford, Wexford, Kilkenny, Galway, Derry, and others, shall form the subject of special articles. MAY THE GOOD GENIUS "PROGRESS" BE PROPITIOUS DURING THE YEAR 1862. AU REVOIR!

ANOTHER MONSTER HOUSE.

THE large building for some months past in course of erection at the corner of Dame and Eustace streets, has been just completed, and presents a frontage to the former of 20 feet, returning 50 feet into the latter. The intersecting angle has been bowed off with an external quadrant of pleasing appearance, a feature we would be glad to see more generally adopted in rebuilding corner houses. The ground floor, or shop façade, executed in Portland cement, displays a series of elliptic arches, deeply embayed, and of highly decorative character, with enriched frieze, supported upon numerous elaborately worked consols of effective design rising above pilasters with panels inlaid with Minton's encaustic tiles, burnt in rich colours, the entire producing a remarkably good effect. The works have been executed from design of Mr. Chas. Papworth, architect, by Mr. Wm. Hughes. We understand these premises, together with a number of houses on the same property, have been just leased to an influential firm, who purpose converting the entire into one vast establishment as a "monster house."

ON ENTERING ARCHITECTURAL PRACTICE.*

NONE of us, however recent our entrance upon a course of preparation for the architectural profession, ought to be indifferent to actual practice as the ultimate aim of our present studies; and, on the other hand, none of us are, I think, so long established in practice as to have quite forgotten the hopes and fears, the struggles and disappointments, the difficulties and the successes of that important crisis. I propose, therefore, to say first a few words upon the course of training, the natural qualities, and the educational accomplishments requisite before entering active responsible practice; secondly, upon the act of commencing practice and ways of obtaining business; and lastly, to offer a few suggestions subject to the corrections of my professional brethren, upon how to transact business when it has been got, and more particularly upon how to act in carrying out the earliest commissions obtained.

The nature of the subject will, to some extent, preclude me from taking the highest and broadest views of our profession as an art, and will limit us almost entirely to considering it as a "practice," or, in other words, a business.

No one ought to enter an architect's office as an articulated pupil, and pay a premium for being introduced to the profession, who has not a reasonably fair prospect of being able, sooner or later, to practise on his own account; and if any gentleman present who is actually a pupil, makes up his mind from what he hears to-night, that he can never hope to succeed in practice, and must always remain an assistant, I would strongly advise him to try and get his friends to transfer him to some other line of business without loss of time. This does not, however, mean that a young man ought to abandon his profession because he feels just now as if he will never like to practise it. To many, perhaps to most young men, there comes, at some time or other, a period of dislike to the profession they have chosen; and that dislike often exists strongly in men who a few years later are enthusiastically fond of the very same profession, and brilliantly successful in it. I tell you, therefore, that it is not a sufficient reason for a man to abandon his calling because he has taken a dislike to it, so long as he feels that if he could but work round to like it he might fairly expect to succeed.

There are youths who enter offices, not so much as regularly articulated pupils, to go through a long course of study, but as junior clerks, and to whom the position and salary of an architect's assistant may be a better thing than they could hope for elsewhere. What I have said, of course, does not apply to such; but it does apply, and very strongly I think, to all those of some little social standing, and accustomed to comfortable circumstances, who are regularly articulated to architects.

Responsible practice being then the thing for all, or nearly all of us, to look forward to, from first entering an office; much of what preparation and training are requisite may be sufficiently gathered from subsequent parts of this paper, where I shall try to describe what an architectural student ought to have made himself before he enters practice, and what he will have to do; but I will here briefly refer to a few of the things which a good architect requires to know and to be, and which a student must constantly aim at.

The profession of an architect demands of a man's moral nature that he shall be upright, that he shall be firm, that he shall be prudent, and, to some extent, that he shall be brave. It requires,

* The substance of a paper read by Mr. T. R. Smith, at a meeting of the Architectural Association, December 6th, 1861.

among intellectual qualities and habits of mind, first and chiefly, great industry, then a plentiful share of plain common sense—a turn for drawing—a certain amount of ingenuity—good taste, and quickness of perception. As to an architect's education, he requires to be generally, at least, well educated, and he cannot possibly be too highly so; and in all that relates to the use of the pencil and to his profession, he ought to be accomplished. Lastly, in habits he must be a man of business, an artist, and a workman; and in mind manners, feelings, and actions, in fact in everything a gentleman, by nature and by culture.

If to these qualities there be added a brilliant genius, so much the better; but it is so rarely the case that what is called genius results in anything better than a flippant disregard of all study and all rule, and in unreliable and fitful skill in some isolated department, with corresponding neglect of other parts of the profession, that I am far from anxious that any of you should suppose himself a genius, or value himself highly upon that distinction if he has reason to believe that it has fallen to his lot; remember the fable of the hare and the tortoise.

Particularly cultivate industry—work hard, and work often. Do not work constantly, for that will be bad for you; do not work listlessly, that will be even worse; but work energetically, and with concentration of mind during the time you devote to work; and, when you want to relax, do so, not by falling into a half mechanical, heedless, inattentive spirit, but by leaving off entirely.

I would strongly urge upon your attention common sense, as a quality very capable of being improved by your own efforts; and the best way to gain this all-important distinction is to think always about what you are doing. There is nothing so destructive to the success of a young man in an office as the habit of doing one thing and thinking of another. Fix your mind upon what you are doing, even if it be only sharpening a pencil, and avoid musing and careless work as you would poison. Whenever you cease to give your attention to what is before you, you are getting harm instead of good, and are losing what may be golden opportunities, and gaining a bad habit instead.

I told you that you must be gentlemen. What a gentleman is I am not going to try to explain; I may, however, give you the hint that two things are most desirable for the making of a true gentleman; and that without them you cannot hope to do much good in this respect. The first is, that you should habitually associate with and narrowly watch gentlemen: the second is, that you should have a good education and good general information.

With regard to society, I would advise you all to cultivate any opportunities you have of visiting friends at whose houses you will meet general society, and especially to frequent literary or artistic circles, if any such are open to you. I believe connection with this Association and with the Institute will be of great value in procuring you professional associations and friends, while travelling will do still more for you; not in the way, perhaps, of procuring you friends, but of setting you at ease in miscellaneous company and among strangers.

It will be impossible here to go to a great length in describing to you the course of education you should pursue. Let me, however, first of all recommend you to make as much as you can of all opportunities of seeing and sharing actual work in the offices where you are; and, above all, of visiting buildings in progress, talking to the workmen, and narrowly examining the work. Let your leisure hours be regarded as a precious treasure, of which a fair share is to be allotted to study connected with your profession, and observe a methodical plan in thus disposing of your time, arranging for each evening what you will do, in what order, and how long time you will spend over each thing.

As for objects of study and books, the new curriculum of the Institute scheme of examinations will point out to you what you had better study, and furnish you with an admirable list of books. I recommend you by degrees to make acquaintance with all those books; together with a little general reading and generally artistic study; devoting a good deal of your time, however, especially in the early years of your study, to drawing, modelling, carving, and such other works as will make you thoroughly acquainted with architectural forms; how to draw them; and if possible how actually to produce them, with your own hands. This practice will help you to cultivate what is of great importance to an architect, *i.e.*, a general familiarity with, and love for all the fine arts.

Of all employments, for leisure, however, none is superior to learning to draw the figure from plaster casts or from life; and those who are wise will do well to devote a large proportion of time to this.

I cannot sufficiently impress upon you the vast importance of acquiring the most intimate knowledge of the small details, alike of construction and of architectural form, and of all building materials. A good architect is always something of a workman in his

knowledge of work; and a few months or a year spent, half of it in a carpenter's shop, and half in a mason's yard, will be of the utmost advantage to you.

Painters and sculptors have an immense advantage over us in being their own handicraftsmen; and good workmen in the various branches employed on a building will have very much the advantage of you when you get into practice; unless you, while yet students, make it your business to become very familiar with all the minutiae of handiwork. One exercise that I would strongly recommend you is to take a good and full specification for some work, read it over word by word, and line by line, and make a memorandum of every word of which you do not understand the full force; and then never rest till, either on the building or in the office, you have got every one of those words so thoroughly explained to you that you will never for a moment hesitate at any one of them when you see it again. I fancy the majority of you will be rather startled to find how long a memorandum paper you would fill, the first time you try this, if you do it thoroughly.

By all means accept any trials of strength in which you have a fair chance of success; and whatever you enter upon strive at with all your might. Don't trace much: never steal designs; and never fill your pocket-books with surreptitiously obtained information. But on new buildings openly watch and sketch, and note all points artistic and constructive, but more particularly the latter, that you are fairly allowed to make your own; and make it at once your pleasure and your business to take every opportunity of studying ancient buildings. There, and there only, you can learn what will make you real architects; and the amount and kind of study you give to them will be the thing which will determine, not perhaps the amount of practice you may ultimately obtain, but certainly the grade you will hold among your brethren.

After a youth has in this way gone through his articles, there are two steps very essential to his being fairly fit to practice. The one is, that he should visit one or more offices, spending a longer or shorter time at each of them, so as to gain experience and to see different modes of practice; and the second is, that he should travel. In visiting offices I should advise that, however good the one where you were educated, you see the practice in one or two others; selecting in preference the best offices, even if it be necessary to enter them without salary; though a youth who has well employed his time of pupillage ought ordinarily to be able to command some salary wherever he goes.

As to travelling, it is most desirable that a good long tour should be made, embracing as many as possible of the continental cities of architectural renown, and extended to as long a time possible. For this, no sacrifice that can honestly and fairly be made should be spared; and during this golden harvest-time no exertions should be omitted to enrich mind and eyes, note-book and portfolio, with as much as the time will possibly allow.

To these two essentials I think I ought to add a third, of a very prosaic nature, but a very necessary one. I think no one, likely to fall into a miscellaneous practice, especially the country, should omit to learn the principles of taking out quantities and measuring up works, and to gain some facility in these branches; not necessarily with a view of furnishing bills of quantities to builders; but in order to be able to make preliminary and other estimates with accuracy, and to wind up the accounts of extras and omissions on a building with fairness and without difficulty. So much for preparation for practice. Now let us consider the actual start into responsible practice,—the transition from the student state into that of the architect; at least, the would-be architect.

(To be continued.)

A SKETCHING TOUR IN FRANCE.

THE following is from a paper read by Mr. Blashell at Architectural Association, as elsewhere mentioned:—As regards anything I may say of the superiority or our neighbours in any respect, you will understand that one of my objects was to take notice of anything that seemed to afford a useful hint; that I had no time to find out their deficiencies; and was, on the whole, so well treated that I could not possibly feel less inclination.

In examining the church architecture of the twelfth and thirteenth centuries, the most interesting features are those connected with the vaulted roofs; everything, indeed, is more or less connected with the vaulting, and influenced by it, and it grows so naturally from the lower portions of the buildings that one may usually gather from a plan of the piers and walls a fair idea of the whole of the vaulting arrangement. I think I did not see in France so many varieties, or such rich specimens of vaulting, as may sometimes be met with in one of our own cathedrals—nothing like our fan groining, or the more complicated arrangements of our rib-and-panel work; and when I saw anything that was not of the most plain and simple kind, it was generally in very late work, and much overloaded with

ornament. Simplicity and massiveness are the general rule, and I thought this was one reason why the spans and heights of the larger churches did not strike me at first sight, as being so much in excess in our own cathedrals as they really are. The ordinary arrangements of transverse and diagonal ribs, by which the compartments are divided into four or six cells, without either secondaries or ridge-ribs, are nearly always adopted; but the modifications of these systems to suit particular cases, such as those of the beautiful Eastern chapels, and other irregular parts, give rise to a wonderful variety of pleasing forms.

I generally took sketches of some portion of the vaulting in connection with the shafts and capitals, and hardly ever failed to find some fresh contrivance to meet any irregularity in the plan, or to adapt new parts of the building to older parts. Such examples occur in the transepts of St. Remi, and in those of St. Martin at Leon. At first sight the absence of a ridge-rib is, I think, disagreeable, especially where the central line of vaulting is straight throughout. There seems to be a want of something to stay the transverse arches and connect them with the diagonals; but where, as is usual, the vaulting is slightly domical, and comes down on strong transverse ribs, there is no need of a ridge rib; and, indeed, it would then, from its want of horizontality, prove a disfigurement. On the whole, I think this feature, from the difference of its office, should, when used, be kept much less in strength than the arch ribs which support the vaults, and should be slightly ornamental. Nearly all the specimens I saw were ornamented heavily, and with bad effect. Short pieces of ridge-rib were often introduced in apsidal chapels of slight projection, between the central boss and the nearest transverse arch, and this last was generally crippled in consequence. After seeing a large number of these stone vaulted churches, the effect of a wooden roof set abruptly on bare walls is strikingly incongruous, very many of our English roofs, indeed, being richly and well designed, and carried on wall shafts, are but slightly open to this objection; but such wooden roofs as I saw in France were extremely unsatisfactory; perfectly plain in themselves, there was neither shaft nor corbel below them to break up the wall space, and the whole looked very bald and barn like. It is much to be wished that the vaulting of churches may become more general, especially as we can now frame the roof in iron, and so render fire impossible. This last precaution has been adopted at Chartres since the fire of 1836; and after seeing the forest of timber used in such roofs as that of the Cathedral of Rheims, we may be glad that such an element of danger exists here no longer.

There are several very good varieties of pillars and combinations of shafts, large circular pillars either plain or surrounded by small shafts, pillars with four attached shafts, as at Chartres, where they are of two kinds placed alternately, in one of which the large central pillar is circular, the shafts octagonal; in the other the central pillar is octagonal, with circular shafts on four of its faces. The latter I thought the best. At Rheims both pillar and shafts are circular. In shafts of all kinds I think the circular section by far the most satisfactory, and the effect of a cluster of these, varying in size, and contrasting with the square angles of the piers which show between them, is most pleasing. Where these angles are hollowed out deeply or heavily ornamented, this effect is lost; and I thought a very slight, sharp ornament the most that could be used with good effect. In the vaulting ribs the most pleasing sections are those where the angles are cut into large pointed beads, or where, in smaller ribs, there is a pointed bead between two hollows: these are most common in the aisles, the ribs of the larger vaults having generally round members; but the pointed section contrasts properly with the circular shafts, and is, I think, always to be preferred.

One of the handsomest halls I saw in France was the Chapter-house at Noyon. The ribs of the vaulting have this pointed section, and the building has an appearance of great elegance. There is plenty of plain wall-space to contrast with the exceeding richness of the openings, and the general effect of the interior is very good. The use of circular headed trefoils in the windows is to be regretted, as they give an effect of weakness. In the four-light openings of the cloister, the trefoils of the lights are circular also, but the arches which enclose them in pairs are very sharply pointed, and the upper circle sits upon them awkwardly. The shafts which carry these upper arches have their capitals at greater height than those of the sub-arches, which destroys the unity of the group of shafts. I think the whole of these windows would have been the better for a general use in the tracery of the bluntly-pointed arch; and, as regards the four-light openings at least, the chief circle might have been larger. There is a handsome west front to this chapter-house; but the buttresses, with their fine terminals, are neither well-proportioned nor well attached to the walls. The most spirited little base ornament, out of a rather large number that I sketched, was found in the channel at Noyon. This place is most easy of access, and there is a great deal of work about the cathedral that should not be missed. Built about the middle of the twelfth century, it belongs to one of the most interesting periods of art. There is a fine triforium, and the piers of the nave are alternately simple and compound, as required

for six-celled vaulting, the arches between them being of the plainest kind, chamfered, stilted, obtusely pointed, and of very good proportions; yet, for some reason, the vaulting which they carry is four-celled. Then there are the very interesting circular-ended transepts, another variety of which I have sketched from Soissons, a very beautiful church, most justly praised for its fine proportions.

In the compound pillars, where four smaller shafts are attached to a central one, the capitals are treated in a variety of ways, the difference in size of the principal and auxiliary shafts having generally suggested a difference in the height of the capital. At Chartres the necking of the smaller columns nearly coincides with a moulding that divides the capital of the principal columns into two stages; sometimes the principal capital is made twice the height of the smaller ones, without any division. At Rheims the capitals are all one height, the smaller ones being in two stages. I nowhere saw them all of one uniform height and treatment, which seemed to be an advisable method. The division of a capital into two stages by a moulding is of rather frequent occurrence, and is always unpleasing. Those capitals having the foliage arranged in stiff crockets seem to produce the best architectural effect; but as specimens of sculpture there are magnificent capitals carved with rich foliage at Rheims and elsewhere. I noticed rather frequently, and in work of a date earlier than I expected, the use of ill-proportioned capitals, carrying mouldings no longer in section than the shaft beneath them; in such cases they seem out of place, and serve only to mark the division between shaft and superstructure, instead of expanding boldly under the abacus to give support to a larger section at the springing of the arches. There is sometimes in comparatively early work a tendency to extreme lightness in construction, especially in clerestories and the arcades beneath them; and however splendid the effect of such treatment may be when there is nothing but slender columns to obstruct the light, and every opening is filled with stained glass, there is about it a want of the ease that is necessary to elegance, and in some cases positive weakness and poverty, that bring to mind some of our Gothic a century or two later in date.

I allude to the cathedral of Chartres rather frequently, because, though I could only examine it very imperfectly, I was, on the whole, more interested there than at any other place. It is one of the largest of the French cathedrals, and chiefly dates from the most interesting period of Gothic architecture, that in which the building of large churches in the pointed style was coming into vogue. Its charms are not those arising from regularity, completeness, or good proportions. In general character it is plain rather than rich, although in its porches and some other parts it has more figure sculpture, and its windows more painted glass than exist in any other of these churches. After seeing a building so regular, so well proportioned, and so nearly complete as Rheims Cathedral, Chartres affords a very interesting instance of great beauty and magnificence existing in company with the marks of accident, experiment, and change of intention. Nearly destroyed by fire in 1194, injured more or less in the sixteenth and seventeenth centuries by the same cause, and the whole of the roofs destroyed in 1836; having the lower part of its western front of the twelfth and the upper part of the fourteenth century, one of the flanking towers being of the twelfth, the other of the sixteenth century, and in no manner of proportion with each other; six or seven more towers in various stages of incompleteness, the body of the church of the thirteenth century, too low and too short for its width, none of its arches agreeing in span, the chevet indifferently arranged, and most of the masonry indifferently wrought. There is still a remarkable character about its architecture, of whatever date, that has caused it to be more frequently referred to and illustrated than any other building of the kind. With regard to the flying buttresses so well known, I have generally found them described as "heavy" or "unpleasing," yet I think we see more sketches by travellers of these than of all others put together, and I do not think it is solely because they are unique. They are part of a building consistently massive, and are, to my mind, except as to the upper portions, about the best adapted to their position and purpose of any I have ever seen. Usually a flying buttress is made to look like a mere rigid prop, carried by a slender arch, sometimes a highly ornamental prop, but very frequently a most offensive one, only to be endured as a necessary evil, hiding the architecture from the eye. Here the buttresses are made artistic, and, instead of the comparatively straight prop of later buildings, which usually suggests danger, we have a bold, deep arch spanning the aisle, open panelled, and having radiating columns most properly applied. I have met with no information as to the uppermost arch, probably of later design, and applied to resist the thrust of the timber roof, which ought to need no resistance; but if the uppermost stage of the upright buttress were made deeper, and finished with a heavy pinnacle, as a counterfort, another pinnacle being raised on the projecting cornice, and so breaking up the mass of roof, I think the composition would be most effective and satisfactory. The present open parapet on the cornice of the nave is modern, there being holes now existing, which may represent a previous one. The spaces are 4 or 5 inches wider than those of the present parapet.

THE REBUILDING OF CARLISLE BRIDGE.

QUICKLY following in the wake of the long-discussed but now—thanks to the ability and energy of its promoters—settled question of the “improved water supply,” is reviewed the often-mooted, and as often consigned to oblivion, project of facilitating the traffic accommodation between the north and south sides of the city at its culminating focus, “Carlisle Bridge.” Want of funds, perhaps want of action, or at least of proper application in a climacteric direction, has so far rendered the initiatory steps abortive; but a new light has recently dawned which dispels a previous misunderstanding, and promises to guide the project to maturity at no very distant day. Alderman Reynolds, the leading promoter, has, with his usual acumen, discovered that ample funds are obtainable, not as “a *compliment*,” but as “a *right*,” from a source akin to the municipal revenues; he will no longer hear of “begging the question,” but will go straight forward to the Chancellor of the Exchequer, and insist on the restoration to the citizens of an income of £16,000 per annum for local carriage rent and fines, which now, it seems, are translated into the coffers of the English public. Should that illustrious functionary prove inflexible, the Alderman will forthwith petition parliament, and should parliament not sanction, what next? But of this enough, the case is in competent hands, and to use the Alderman’s own phrase, “he is able to box his corner with any man.” The first practical steps of appointing a committee of the corporation, to inquire and report as to the desirability of rebuilding the bridge has been adopted; the best mode of carrying out the object will most probably next be sought for, by inviting in competition—limited or otherwise—plans from engineers for the purpose, premiums for *best* and *second best* designs respectively being offered. We assume that the Alderman’s own design of constructing the new bridge, the full width of Sackville-street, will be substantially carried out; but, with reference to the architectural character of the structure, we trust that as he has denounced the existing bridge designed by the eminent Gandon, architect to most of our public buildings, he will, by his influence, ensure the choice of a plan that will, to all intents and purposes, constitute it, as promised, “the handsomest bridge in Europe.”

We may here appropriately introduce the substance of Alderman Reynolds’ further observations on this subject at a numerous and influential meeting held on this 1st inst. at the Imperial Hotel, the High Sheriff, Mr. J. C. Colvill, presiding:—

“He had searched the journals of the Irish House of Commons, and found that, from 1786 to 1791, when the present Carlisle bridge was built, the Irish legislature annually set apart a certain sum for building the bridge, and they voted not only all the money that built the bridge, but all the money requisite to make Westmoreland-street. A street called Drogheda-street stood where portion of Westmoreland-street now is, and a large number of lanes and alleys were in the neighbourhood; the Irish House of Commons voted money to buy them up and to build the present Westmoreland-street. They also bought up a filthy lane called Bachelor’s-lane, from which was named Bachelor’s-walk, and voted more than £100,000 to build Carlisle-bridge, and to make its approaches. The population of the city was then under 150,000; it is now 300,000; and, consequently, the population and the commercial traffic have outgrown the size of the bridge. He does not now want a grant to rebuild the bridge; all he wants was to be given their own money to do so. He hoped that Lord Carlisle and Sir Robert Peel would read the statements that were being made on the subject, so that they might understand the subject when the deputation from the aggregate meeting waited on them. Having referred to the pecuniary facilities afforded the citizens of London to improve their city, Alderman Reynolds, in reference to the Ballast Board, said that when the requisition to the Lord Mayor, to call the meeting at the Rotundo, was presented to them for signature, all hostility to the project disappeared when the question was explained to them; and whilst they declined as a corporation to sign the requisition, every member was at liberty to act for himself as he thought right, so that no hostility need be anticipated from that quarter.”

THE CRYSTAL PALACE, SYDENHAM.*

We resume by permission our description of this building from the general guide book of the Company, and may also add, that through the courtesy of the Directors and Secretary, we are herewith enabled to present views of the several Courts and of the exterior and interior of the structure itself:—

“But vast as are the proportions of the Crystal Palace, novel and scientific as is the principle of construction, we are in some degree prepared for this magnificent result of intellect and industry by the Great Exhibition of 1851. One arrangement, however, in the present structure admits of no comparison; for, in

point of extent, it leaves all former efforts in the same direction far behind, and stands by itself unrivalled. We refer to the process of warming the atmosphere in the enormous Glass Palace to the mild and genial heat of Madeira, throughout our cold and damp English winter.

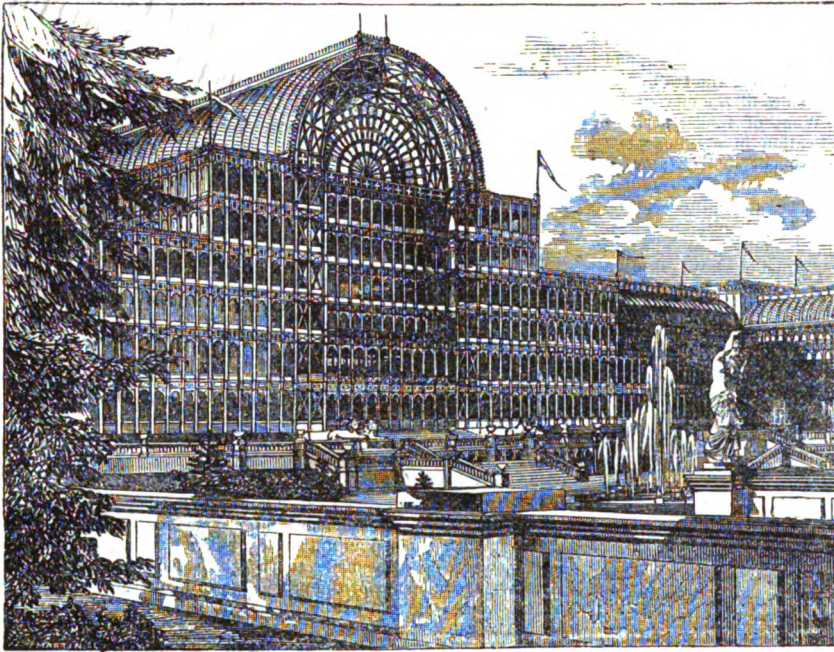
“The employment of hot water as a medium for heating apartments seems to have been first hinted at in the year 1594, by Sir Hugh Platt, who, in a work entitled “The Jewel House of Art and Nature,” published in that year, suggests the use of hot water as a safe means of drying gunpowder, and likewise recommends it for heating a plant-house. In 1716, Sir Martin Triewald, of Newcastle-on-Tyne, proposed a scheme for heating a green-house by hot water; and a Frenchman, M. Bonnemain, a short time afterwards invented an apparatus for hatching chickens by the same means. In the early part of this century Sir Martin Triewald’s plan of heating was applied to conservatories, at St. Petersburg; and a few years later, Bonnemain’s arrangement was introduced into England, where it has undergone several improvements, and occupied the attention of scientific men. The application of hot water to the heating of churches, public libraries, and other buildings, has been attended with considerable success, and it is now looked upon as the safest, as well as one of the most effectual artificial methods of heating.

“The simple plan of heating by hot water is that which Sir Joseph Paxton has adopted for the Crystal Palace. But simple as the method undoubtedly is, its adaptation to the purposes of the Palace has cost infinite labour and anxious consideration: for hitherto it has remained an unsolved problem how far, and in what quantity, water could be made to travel through pipes—flowing and returning by means of the propulsion of heat from the boilers. At Chatsworth, the seat of the Duke of Devonshire, the principle has been carried out on a large scale, and the experiment there tried has yielded data and proof: but in the present building, a greater extent of piping has been attached to the boilers than was ever before known, or even contemplated. In order to give the visitor some idea of the magnitude of the operation in question, it will be sufficient to state that the pipes for the conveyance of the hot water, laid under the floor of the main building, and around the wings, would, if placed in a straight line, and taken at an average of 12 inches, stretch to a distance of more than 50 miles, and that the water in flowing from and returning to the boilers, travels one mile and three-quarters. But even with these extraordinary results obtained, the question as to the distance to which water can be propelled by means of heat is far from being definitely settled. Indeed, Sir Joseph Paxton and Mr. Henderson invented an ingenious contrivance, by means of which, should it ever be required, a much larger heating surface may be called forth at any time in any particular portion of the building.

“The general arrangement of the Heating Apparatus may be described as follows:—Nearly twenty-four feet below the surface of the flooring of the main building, and leading out of “Sir Joseph Paxton’s Tunnel” (the name given to the roadway in the basement storey, extending the whole length of the building on the side nearest the Gardens), are placed, at certain intervals, boiler-houses, each containing two boilers capable of holding 11,000 gallons of water. The boilers are twenty-two in number, and are set in pairs. In addition to these, a boiler is placed at the north end of the building, on account of the increased heat there required for the tropical plants. There are also two boilers set in the lower stories of each wing, and two small boilers are appropriated to the water in the fountain basins at each end of the building, which contain Victoria Regias and other aquatic plants of tropical climes. Four pipes are immediately connected with each boiler; two of such pipes convey the water from the boiler, and the other two bring it back; they are called the main pipes, and are nine inches in diameter.

“Of the two pipes that convey the water from the boiler, one crosses the building transversely—from the garden-front to the opposite side. Connected with this pipe, at certain distances, and in allotted numbers, are smaller pipes, five inches in diameter, laid horizontally, and immediately beneath the flooring of the building. These convey the water from the main pipe to certain required distances, and then bring it back to the *return* main pipe, through which it flows into the boiler. The second main pipe conveys the water for heating the front of the building next to the Garden; and connected with this, as with the other main pipe, are smaller pipes through which the water ramifies, and then, in like manner, is returned to the boiler. Thus, then, by the mere propulsion of heat, a vast quantity of water is kept in constant motion throughout the Palace, continually flowing and returning, and giving out warmth that makes its way upwards, and disseminates a genial atmosphere in every part. To ensure pure circulation throughout the winter, ventilators have been introduced direct from the main building into each furnace, where the air, so brought, being consumed by the fire, the atmosphere in the Palace is continually renewed.”

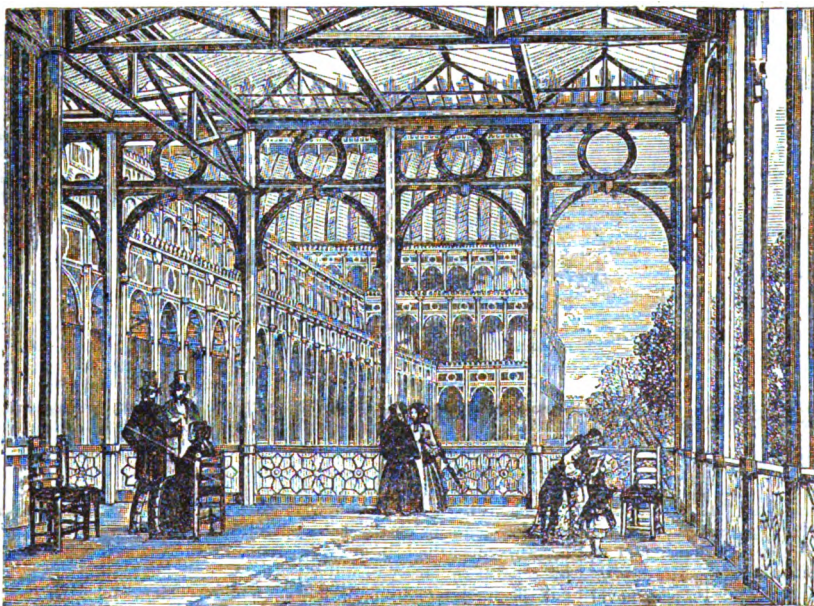
CRYSTAL PALACE (SYDENHAM) ARCHITECTURE.



THE GREAT CENTRAL TRANSEPT.

Our first view of the series illustrates the exterior of this most imposing feature in the building, the arch of which rises from the floor line nearly 175 feet in a light and graceful span, and from the level of the first terrace to its summit 197 feet 10 inches. There are five galleries here, one above the other, the uppermost of which runs entirely round the transept, and the third extends along the entire length of the building on each side. The western end of this transept is occupied by the great orchestra, capable of accommodating 4,000 performers, which was erected for the great Handel festival. In the centre is the great organ by Gray and Davison. On the northern side are ranged some choice statues of modern schools. A portion of this transept is also visible in the next illustration taken from

THE OPEN GALLERY TOWARDS THE GARDEN FRONT.



We now pass to the interior of the nave, off which the several Fine Arts Courts are situated, and the following explanatory remarks will enable our readers the better to appreciate the arrangement of these restorations:—

“One of the most important objects of the Crystal Palace is to

teach a great practical lesson in Art. Specimens of various phases through which the arts of Architecture and Sculpture have passed, are here collected from the earliest known period down to modern times, or from the remote ages of Egyptian civilization to the sixteenth century after Christ—a period of more than three thousand years.

“Perhaps no subject, with the exception of the literature of departed nations, affords more interest to the mind of man, than these visible proofs of the different states of society throughout the world's history; and nothing better aids us in realising the people and customs of the past, than the wonderful monuments happily preserved from the destructive hand of Time, and now restored to something of their original splendour by the patient and laborious researches of modern times; and, we may add (not without some pride), by the enterprising liberality of Englishmen.

“Nor is it the least extraordinary fact, in this view of progress, that the building itself, which contains these valuable monuments of past ages, is essentially different from

every preceding style, uniting perfect strength with aerial lightness, and as easy of erection as it is capable of endurance. Thus then, beneath one roof, may the visitor trace the course of Art from centuries long anterior to Christianity, down to the very moment in which he lives, and obtain by this means an idea of the successive states of civilisation which from time to time have arisen in the world, flourishing for a greater or less period, until overturned by the aggressions of barbarians, or the no less destructive agency of a sensual and degraded luxury. Sculpture, the sister art of architecture, has also been worthily illustrated. Vainly, in any part of the world, will be sought a similar collection, by means of which the progress of that beautiful art can be regularly traced.

“The statues will generally be found as much as possible in or near the Architectural Courts of the periods and countries to which they belong, so that the eye may track the intellectual stream as it flows on, now rising to the highest point of beauty, and now sinking to the lowest depths of degradation.”

Immediately adjoining, and to the northward of the great transept, is the Egyptian Court. The remains of Egyptian Architecture are the most ancient yet discovered. The style is characterised by simplicity of construction, gigantic proportions, and massive solidity. The buildings were almost entirely of stone, and many of them excavations and shapings of rocks.

Advancing up the avenue of lions, cast from a pair brought from Egypt by the Duke of Northumberland, we have before us the outer walls and columns of a temple, not taken from any one particular structure, but composed from various sources, to illustrate Egyptian columns and capitals during the Ptolemaic period, somewhere about 300 years B.C. On the walls are coloured sunk reliefs showing a king making offerings or receiving gifts from the gods. The capitals or heads of the columns are palm and lotus-leaved; some showing the papyrus in its various stages of development, from the simple bud to the full-blown flower. The representation of the palm and the papyrus occurs frequently in Egyptian architecture; the leaves of the latter, it will be remembered, were made into a kind of paper, and its flowers were specially used as offerings in the temples. On the frieze above the columns is a hieroglyphic inscription stating that “in the seventeenth year of the reign of Victoria, the ruler of the waves, this Palace was erected and furnished with a thousand

statues, a thousand plants, &c., like as a book for the use of men of all countries." This inscription is repeated, with some slight additions, on the frieze of the interior of the Court. On the cornice of both the inside and outside of the Court are the names of her Majesty and the Prince Consort, engraved in hieroglyphic characters, and also winged globes, the symbolic protecting deity of doorways. Entering by the central doorway, on the lintels and sides of which are inserted the different titles of King Ptolemy, in hieroglyphics, we find ourselves in the exterior court of a temple in which the multitude assembled; the decorations of the walls are similar to those we saw outside, and it must be borne in mind that the colouring is taken from actual remains in Egypt. On the wall to the left is a large picture copied from the great Temple of Rameses III. or Rameses Mai Amun, at Medinet Haboo, near Thebes, showing the counting of the hands of the slain—three thousand as we are informed by the hieroglyphics engraved over the heads of the scribes—before the king who is in his chariot; on the right-hand side of the Court is a representation of a battle-scene, with the Egyptians storming a fortress. Turning to the left, after examining the eight gigantic figures of Rameses the Great, forming a façade of another temple, we enter the Court of Amunothph, a colonnade of an early period, its date being about 1300 B.C. The columns represent eight stems and buds of the papyrus bound together, and are cast from a black granite column bearing the name of Amunothph, now in the British Museum.

Passing on we find ourselves in a model of a
TOMB AT BENI HASSAN.



It is the earliest piece of architecture in the Crystal Palace, its date being about 1660 B.C. The original tomb is cut in the solid chain of rocks that forms a boundary on the east of the Nile, separating the sandy desert from the fertile valley of the river. Although architectural remains exist in Egypt of a much earlier date than this tomb, it still possesses great value to us, for it may be considered as exhibiting the first order of Egyptian columns, which was employed in constructing buildings at as remote a period as two thousand years before Christ; this fluted column in another respect claims our attention, for there can be but little doubt that it supplied the Greeks with the model of their early Doric. The original tomb has but one instead of four entrances as here represented, and is accordingly more gloomy and impressive. What is lost in sombre effect, however, is made up to the visitor in convenience.

Next to this, and in the order of disposition that might naturally be expected, considering their associated histories, are the Greek and Roman Courts, by which however our space compels us to pass at present.

(To be continued.)

WHERE OUR TIMBER COMES FROM.—Great Britain and Ireland import annually some 27,000,000 cubic feet, 540,000 loads of Canadian pine timber, the greater part of which is manufactured on the Ottawa river and its tributaries. The operations of this manufacture extend over upwards of 11,000 square miles, and give employment to more than 40,000 men; but there are, perhaps, but few in England who have more than the most misty conception of the way in which the giants of the forest are subjected to the dominion of man.—Once a Week.

EMPLOYERS AND EMPLOYED.

A CHRISTMAS GATHERING!

It unfortunately but seldom happens that we are permitted the pleasing privilege of recording the occurrence in this country of a convivial re-union, wherein masters and employees pass some happy hours together around the festive board; and it was, therefore, with no small gratification that we received—per favour of the host, Mr. Thomas S. Martin—an invitation to attend on the evening of the 26th ult., a grand ball and supper at the North-wall Saw Mills, to the operatives engaged in that establishment and to the adjoining extensive concerns of Messrs. John Martin and Son, the eminent timber-merchants and shipowners. As nearly as we could judge, some 700 people—of whom "a fair proportion" were the wives and daughters of the artisans, assembled in a large timber store, suitably prepared for the occasion, and the festivities commenced about six o'clock, the guests arriving in crowds until the spacious building was almost completely filled. In the principal apartment a *dais* was erected at one end, as well for the orchestral performances as for the accommodation of a select few, and at the other end, returning to a considerable length at each side, were arrayed the supper tables, which, it is but justice to add, were most abundantly supplied with substantial dishes, pastry, and fruits, much to the credit of the provider, Mr. Fleming. Of potables, Guinness' XX, and the far-famed Drogheda Ale, were in the ascendant—the national beverage and national curse, "whiskey," being very properly absent—and of these a very plentiful quantity was being constantly distributed from a temporary bar. About midnight, after some six hours of incessant tripping on "the light fantastic toe," in which, during the evening, the Messrs. Martin, their ladies, and friends joined, signs of a break up were visible, and after the National Anthem was played, Mr. Thomas Martin was called upon, amidst loud cheering, to address a few parting words. In responding to the call, that gentleman told the company that he was happy to see them there assembled and enjoying themselves; and, furthermore, that he hoped to see them again under similar circumstances every year—an announcement that was received with tremendous enthusiasm. We, with great pleasure, bear testimony to the generally excellent demeanour of the guests, even under the excitement consequent on the occasion, and have no doubt that both that evening will be gratefully borne in remembrance, and those promised in future will serve as a stimulus to increased exertion. Mr. Thomas Martin has very worthily introduced into his establishment, the custom of "Christmas gatherings" as one of the first-fruits of his visit to Australia, where such an event is general in large establishments.

THE COUNTY SURVEYORSHIP OF ANTRIM.

MR. CHARLES LANTON, Architect and C.E. (who at this date enters on his duties as Mayor of the important commercial seaport town, Belfast) has resigned the appointment of the county surveyorship, which, as already alluded to in this journal, he held for many years, so distinguished for ability and courtesy that there is a unanimous regret experienced at his retirement. We understand that Mr. Alexander Tate, C.E., one of the District County Surveyors for Dublin, has been appointed to the office.

PROVINCIAL BANK, BALLYSHANNON.

ADDITIONS with considerable internal alterations and improvements have been completed at the Provincial Bank house in this town, at a cost of about £1200. Mr. William Murray, architect; Mr. John Nolan, builder.

THE EGLINTON TESTIMONIAL.

On yesterday, the meeting convened by the Lord Mayor for the above purpose, took place at the Mansion House, and was most numerously attended by parties of all sects and denominations. Amongst the principal speakers were Viscount Gough, who proposed the first resolution for a subscription list to be formed—Mr. Whiteside, M.P., who seconded in an able oration—the Marquis of Drogheda, Mr. Blake, M.P., Lord Dunlo, Mr. Pierce Creagh, Earl Bective, the Rev. Peter Daly, P.P., Mr. P. O'Brien, M.P., Mr. Close, M.P., &c. The warmest expression of admiration for the deceased nobleman's amiable qualities and friendly feelings towards Ireland were elicited.

THE MARSH TESTIMONIAL.

WITH reference to a paragraph that appeared in the last number of this journal, to the effect that it had been determined by the Marsh Testimonial Committee to obtain a bust of the deceased Baronet and M.D., from Mr. Foley, sculptor, we are reminded that such was only a *suggestion* emanating from a member, and not a *decision* of the body.

THE CASTLEBAR LUNATIC ASYLUM.

AT a meeting of builders, held on the 18th December, to appoint a surveyor to prepare the quantities for the new Lunatic Asylum proposed to be built at Castlebar, county Mayo, Mr. Wilkinson, architect, Mr. B. T. Patterson, L.C.E., of 206, Great Brunswick street, Surveyor, was elected.

CANTERBURY CATHEDRAL.

THE contemplated designs for the new church had not been entirely executed before the death of St. Augustine, which event occurred in the year 604, and his remains were deposited within the precincts of the monastery. The Cathedral of Canterbury was completed by his successors, but suffered most severely from an incursion of the Danes. It was subsequently restored by Archbishop Ode in the year 988. It was again almost totally destroyed by the ravages of the Danes, who burned and demolished everything, with the exception of the mere shell or exterior walls, but was once more restored by King Canute on his accession to the throne in the year 1017. The cathedral was accidentally burned down in the year 1067, immediately before Lanfranc, who was Abbot of Caen, had been elevated to the archiepiscopal see of Canterbury, which took place during the reign of William the Conqueror. Lanfranc was an archbishop who had acquired great celebrity, not only for his learning, zeal, and sanctity, but was also distinguished as a patron of the fine arts, and developed a superior taste and genius for architecture and design. He pulled down much of the ancient fabric, and recommended building the cathedral on a more magnificent scale, with noble arches supported by columns of the most correct and elegant proportions, and though he died before he witnessed their completion, his designs were fully carried out by Prior Conrad, and by St. Anslem, who was successor to Lanfranc in the see of Canterbury; and William of Malmesbury, writing of it, says—"Nothing similar was to be found in England, either for the brilliancy of the painted windows, the splendour of the marble pavement, or the pictured roof which attracted the eyes of beholders." Gervase, a monk of Christ's Church, has written a most erudite and interesting history of Canterbury Cathedral. Archbishop Rodolphus dedicated the cathedral to God under the title of Christ's Church Cathedral, in the year 1114. The building presents a most imposing and magnificent appearance from every approach to the city, and, though not so large as York Minster, is considered by some architects to be more pleasing to the eye, from its beautiful central tower, which rises to the height of 284 feet, and in diameter measures 85 feet. The cathedral is built in the cruciform style, having a chapel at the extreme eastern end, in a semi-circular apsis called Becket's crown, and which is unique in its way, there being no other similar example in the empire. The cathedral measures 545 feet in length, and 156 feet in width across the transepts. The northern transept where St. Thomas was murdered is called the martyrdom, and the precise spot where the martyr fell is marked by a marble slab on the pavement. Various portions of the fabric having been erected at various ages and various stages of architectural science, it presents various specimens of architectural orders uniting the Anglo-Norman semicircular arch with the Corinthian column, with its enriched mouldings and canopied figures, and also specimens of the Tudor style, with the clustered pillars and pointed arches of the Gothic order. It has an undercroft or crypt of great extent and singular construction, supposed to have been erected by Lanfranc. Some of the stained glass windows are very ancient, and of exquisite design, and charming beauty and harmony of colouring. The church formerly contained thirty-eight altars and many chapels, of which those dedicated to the Blessed Virgin, St. Bennet, and St. Thomas, were the most elaborate and sumptuous, and the altar screen was a wonderful effort of art. The monastery attached to Canterbury Cathedral was dissolved by Henry VIII., on the 30th of March, 1539—he destroyed St. Thomas à Becket's Shrine, and seized upon all the endowments, and revenues, and immense treasures of the cathedral, and attributed them to his own use; and the faithful monks and canons of the chapter were dispersed and cast upon the world. Subsequently the cathedral was most materially injured and defaced by one Hugh Culmer, who at the head of a body of fanatics, smashed the stained glass windows, demolished the fresco paintings and marble statuary, which have never since been entirely restored.—*Canon Pope's Lecture for the Young Men's Society—"On Canterbury Cathedral."*

INSTITUTION OF CIVIL ENGINEERS.

A ROUTINE meeting of election took place on the 17th ult., Mr. Bidder, President, in the chair, of which the following is the result:—John Hawkshaw, *President*; J. E. Errington, J. Fowler, C. H. Gregory, and J. R. McClean, *Vice-Presidents*; Sir Wm. Armstrong, J. Cubitt, T. E. Harrison, T. Hawksley, G. W. Hemans, J. Murray, J. S. Russell, G. R. Stephenson, C. Vignoles, and J. Whitworth, *Members*; and Mr. John Cochrane, and col. Simmons, R.E., *Associates*. In consequence of the recent death of the Prince Consort the other business was postponed until the 14th inst.

ROYAL HIBERNIAN ACADEMY OF ARTS.

THE following address of condolence to her Majesty has been adopted by the Academy, and forwarded for presentation:—

"To her Most Excellent Majesty the Queen."

"MAY IT PLEASE YOUR MAJESTY—We, the President and members of the Royal Hibernian Academy, as dutiful and loyal subjects, beg to approach your Majesty with the expression of our deep sympathy, and to respectfully offer our condolence in your Majesty's sad bereavement. In unison with all your Majesty's subjects, we deplore the premature death of his Royal Highness the Prince Consort; but, as members of a profession whose pursuit it was the peculiar study of his Royal Highness to encourage and promote, we must feel that the arts have lost an enlightened and discriminating patron, whose memory will be long cherished, whose influence long felt, but whose place knows him no more. Trusting that the Almighty may afford your Majesty that strength and condolence which He alone can give, we pray that He may ever protect and sustain your Majesty and your royal house.—Signed,

CATTERSON SMITH, President.

M. ANGELO HAYES, R.H.A., Sec.

"Royal Hibernian Academy of Arts,
Dublin, Dec. 30, 1861."

ARCHITECTURAL ASSOCIATION.

A MEETING was held on 20th ult., Mr. Blomfield, President, in the chair. Several members were elected. Mr. Blashill read a lengthened paper entitled "A Sketching Tour in France"—elsewhere given. After observations thereon by some of the members, an adjournment of the discussion to a future evening was determined on.

THE ARCHITECTURAL MUSEUM.

THE Committee record their sense of the loss of their patron, the late Prince Consort, in the following terms:—"The Committee of the Architectural Museum beg to testify their deep grief at the decease of his Royal Highness the Prince Consort. While feeling alike with all her Majesty's subjects the greatness of the national misfortune, and respectfully sympathising with a loss which is irreparable to the Sovereign and the Royal Family, they trust that they may be permitted to express their own especial sorrow at the decease of a prince who has always shown himself the wise and learned promoter and munificent patron of art, and to whom the Architectural Museum owes a deep debt of gratitude for the kindness which induced his Royal Highness at the first foundation of the Museum to honour it by condescending to become its patron."

THE approaching session will commence with an address by Mr. Beresford Hope, President, and the presentation of prizes to artist workmen. Lectures on the following subjects will follow:—On Tile Pavements, by the Rev. Lord Alwyne Compton; on the Quattrocento, or Transitional Architecture of Florence, by Sir F. E. Scott, bart.; on the Formation of a National Museum of Architecture, as viewed especially in this connexion with the Mediæval styles, by Mr. G. G. Scott, R.A.; on Labourers' Cottages, and their bearing upon Architecture, by the Rev. T. James, M.A.; on the various System of Coloured Decoration of the Middle Ages, by Mr. William Burgess; on the Ecclesiastical Architecture of Georgia, by the Rev. G. Williams, B.D.; and on the Difference between Minster and Parish Churches, by Mr. E. A. Freeman.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE following Address of Condolence of the Royal Institute of British Architects has been forwarded to the Right Hon. Sir George Grey, Bart., her Majesty's Principal Secretary of State for

the Home Department, for presentation to her Majesty, on the decease of his Royal Highness the Prince Consort:—

The Dutiful Address of the Council of the Royal Institute of British Architects to her Most Gracious Majesty the Queen.

May it please your Majesty,

The President and Council of the Royal Institute of British Architects, on behalf of themselves and of the other members of their body, desire respectfully to approach your Majesty with the expression of their deep-felt sorrow and sympathy on the recent death of H.R.H. the Prince Consort, an irreparable loss to your Majesty, to the Royal Family, and to the whole of the British Empire.

The noble and amiable character of the Prince, as a husband and a father, had won the respect and gratitude of your Majesty's loving subjects. His high intellectual attainments and promotion of the Fine Arts, his patronage of science, and his enlightened support of every useful and benevolent work, will render his memory enduring as one of the great benefactors of the nation, and this Institute cannot but lament, in their late patron, a Prince whose loss they feel it impossible to supply.

This Council earnestly pray that your Majesty and the Royal Family may derive every support, under this heavy dispensation of the Almighty, from the consolations of our holy religion, and from the contemplation of the virtues of a Prince so eminently estimable in all the relations of public and private life.

Signed by—William Tite, President; Thomas L. Donaldson, V.P.; M. Digby Wyatt, V.P.; George Gilbert Scott, V.P.; James Fergusson, Chas. G. Nelson, Edward M. Barry, William Slater, Benj. Ferrey, John B. Waring, George Edmund Street, John Norton, William Haywood, Robert Kerr, T. Hayter Lewis, Hon. Sec.; F. C. Peurose, Hon. Sec. Foreign Correspondence.

The next Ordinary General Meeting of the Session will be held on Monday next, when a paper will be read by Mr. G. G. Scott, "on the Conservation of Ancient Architectural Monuments and Remains."

A Special General Meeting of members only will be held on Monday, the 13th inst., to receive a report from the Council on "Professional Practice and Charges."

PROGRESS OF TELEGRAPHY.

For facilitating the transmission of "Atlantic News," it is proposed to establish a new telegraphic line which will place Queenstown not only in direct communication with the telegraph station at the entrance to the harbour, but also with the Old Head of Kinsale, from whence the Atlantic steamer may be sighted several hours earlier than is at present the case. Lord Fermoy has given permission to lay a telegraphic wire over his property from Roche's Point, which will be carried on to Queenstown, and join a main line, which will connect Cork to Queenstown with Waterford and Wexford, and thence run to Carnmore Point, projecting a considerable distance into the St. George's Channel. At this point the line will be submerged to St. David's Head, on the Welsh coast, and be continued to Milford, Gloucester, and Bristol, direct to London, the whole line being about half the length of that at present required to connect Queenstown and London. At Kinsale Head there will be a semaphore to communicate with vessels in the Channel.

The British and Irish Magnetic Telegraph Company, whose wires are erected as for as Bagnalstown, are about to carry them along the line of railway to Ballywilliam and thence to Wexford. This will place Wexford in communication with over one hundred stations that the telegraph company possess in Ireland, and also with Great Britain and the Continent of Europe. The Magnetic Company's wires also extend from Dublin to Wicklow, and it is in contemplation shortly to carry them on to Gorey and to Wexford, as soon as the railway is completed. Dungarvan and New Ross it is expected will likewise have the benefit of telegraphic communication at no distant period.

GAS LIGHTING UNDER THE ALPS.

Amongst all modern scientific inventions calling forth the capabilities of the engineer within the last half century, and tending to ameliorate the condition of mankind, including the locomotive engine and the electric telegraph, there are none of more importance than the system of lighting by gas.

We well remember in our younger days having to grope along our streets by the aid of a sort of rushlight, stuck amongst oil in non-descript-shaped glass globes, the dim rays from which only tended to make "darkness visible." Now, happily, by the aid of man's ingenuity and perseverance we can traverse the thoroughfares of the metropolis, and even the most remote provincial towns of the kingdom in a galaxy of brilliant light.

In the category of scientific and ingenious men of the present day in reference to improvements in gas, no one can fairly lay more claim to credit for his perseverance in this special branch of engineering skill than Mr. George Bower, of the Vulcan Iron Works, St. Neot's, Huntingdonshire, who has startled us by the announcement that he is at present lighting with gas, for the Italian government, the tunnel now being formed under Mount Cenia.

The principle upon which the patentee founds his invention is exceedingly simple, and as such, is more deserving of general approbation. Mr. Bower does not confine his labours to work on a large scale, but has invented a compact and manageable coal-gas apparatus within the reach and government of every owner of a manufactory, mansion, or cottage, whose position may have hitherto condemned him to use inferior modes of lighting.

In the new apparatus the hydraulic main condenser and purifier are all combined within one arrangement, thereby insuring a compactness and simplicity unattainable by the disconnected system.

By this mode the operations of condensation and purification of the gas is effected within the compass of a solid base; whereas the ordinary method requires three or four cumbrous vessels.

Mr. Bower contends, after having carefully experimented on gas making for upwards of eight years, during which period he has tried almost every possible plan of producing artificial light, that coal alone is still after all the best material for the purpose.

In coal gas the combination of hydrogen and carbon is such that a similar one cannot be effected with these constituents when in separate forms. It is true that water, which is really costless, will produce an illuminating gas when decomposed, and its hydrogen carbonised; but the cost of this decomposition in wear and tare and labour alone, for the production of the hydrogen—one only of the elements of which coal gas is made up—is actually more than that of highly illuminating gas produced from coal. In considering the late attempts at the production of resin, oil, or hydrocarbon gas, he decidedly denies their capability of competing with coals as gas-producing substances, even giving coal a range of price up to 50s. a ton.

In concluding our notice, we congratulate Mr. Bower on the success of his labours, which is already sufficiently elucidated from the fact that his system has been largely adopted in numerous mansions of the nobility and gentry, and in factories and railway stations, and that he has lighted a great number of towns and buildings both in Great Britain and many other places on the Continent, and as we have already stated, is lighting the railway tunnel at present being formed under Mount Cenia, one of the giants of the Alpine range so well known to all travellers over Southern Europe.

—*Builders' Reporter.*

STATE OF TRADE IN THE MANUFACTURING DISTRICTS.

FROM a general review of commercial affairs at the close of the year 1861, we collect the following:—

"At Birmingham it seems there was a very small amount of business done in the manufactories in last December. At some of the principal establishments, where there were special orders in for particular markets, the men worked four days, but these were quite exceptional cases, the bulk of the orders in having been worked up previous night, and since Christmas-day there were more manufactories closed than for many years on a similar occasion. There are few orders in with which to recommence operations. Next week will be devoted, the greater part of, to stock-taking. Manufacturers will be slow to recommence it in present circumstances, and until the middle of this month there will be little of actual business done.

The manufactories at Sheffield, as usual at this season, are generally closed for stock-taking. Most of the firms in the old branches of trade have worked up their orders. The depression which prevailed during the year was partially relieved during the last few weeks by an influx of home orders for goods required for Christmas. Some of the silver and plating houses, however, are in receipt of orders which have enabled them to resume work. In the cutlery trade the orders appear to be unusually limited. Large orders have just come to hand for steel for war purposes from America, though most of our manufacturers are doing no business with the United States except on cash terms. Fair orders for such continue to arrive from the Continent, but in manufactured goods trade is duller. Several of the principal houses up to Christmas, a good trade in springs, though others complain of a falling off of orders. The carrying trade was brisk during the few days preceding Christmas, but has since been very dull. The Canadian and Australian markets continue dull.

The iron trade at Wolverhampton is very flat. The few orders which come to hand are kept back from the feeling of suspense with reference to our American relations. It is by no means improbable that war, however it might effect the general trade of the country, would increase the demand for iron, as was experienced

during the Crimean campaign. Decision either way will quicken the demand. At the ironmasters' preliminary meeting allusion was made to recent strictures respecting the quality of iron for use in building ships. The general impression here is, that the rejection of iron at Chatham arose from the authorities accepting an unduly low tender, as large quantities of iron for government vessels have for some time been supplied to contractors from this locality, and it has stood the government test applied by admiralty officials without any fault being found. Pig iron is only selling in a few instances for next quarter. Markets ask an advance of 2s. 6d. per ton on the prices given three months ago, while buyers hope to purchase a shade cheaper rather than dearer. The hardware trades are generally very flat indeed—the jappanners, makers of best locks, and of railway wheels and axles, carriages, &c., being the principal exceptions. The Board of Trade returns for November show that while the United States have this year taken less iron and steel by £2,000,000, France has taken three times as much as last year, and Italy has imported a much larger quantity.

THE PANTOMIME.

ADULTS as well as juveniles look forward with interest to the production of that simultaneously serio-comical, semi-supernatural, and semi-terrestrial extravaganza which, by immemorial custom, is the prevailing source of public amusement during the Christmas holidays; and, indeed, there is seldom room for objection to the general style of those annually presented by the enterprise of the presiding official at our Theatre Royal.

About this time twelvemonths we had occasion to notice, very favourably, that entitled "Jack the Giant Killer," an illustration of the popular nursery tale of that name—the versatile, talented, and vivacious Mrs. Burkinshaw personating the all-powerful hero. Many of our young friends bear still a lively remembrance of Jack's prowess; but not being yet installed into stage mysteries, they entertain, very naturally, confused opinions as to how the "wonderful Jack" of last year is converted into the equally wonderful "Aladdin" in the present pantomime. Oriental tales have furnished many admirable subjects for pantomimic adaptation; and certainly not the least so is that wherein the "Gamin of Canton" is the chief personage; and his adventures with the wicked Magician, the wonderful lamp and ring, his love of the Princess, &c. &c., form the incidental features of the plot. In the scenic department of the opening, Mr. William Glover, the principal artist, excels his previous efforts; and the graceful dancing of the Misses Fanny Brown and Aiterwell, afterwards columbines, together with the *corps de ballet*, contribute not a little to his assistance in producing the charming effect so successfully obtained in the "haunt of the fairies." All impatience, however, is manifested by the young folk for the "funny clown;" and when that very incomprehensible individual, together with his unhappy companion, the pantaloon—the not-to-be-caught harlequin, with his magic wand and his lady-loves, the columbines—appear in obedience to the good fairy's summons, quite a commotion ensues, and the utmost mirth is maintained during the subsequent comic proceedings. We can hardly, however, compliment these latter on their originality. There is the same repetition of "street fights," the "ubiquitous policeman," the "bed-room scene" between clown and pantaloon, and very little (if any) witty reference either to current topics of local or general interest. Of the columbines we have before spoken, and they maintain themselves throughout as pleasing danseuses. The clown is not equal to others we have seen on same boards, and, if we mistake not, is rather passé for his vocation. The pantaloon fulfils his mission—"to be, to be done, and to suffer"—fairly. The harlequin is remarkably active, and a good dancer, moreover. None of the transformations deserve especial notice, except the turning of the house inside out, and *vice versa*, which is admittedly a mechanical success, and the tricks are not quite up to the standard of some previous years. Mr. Levey has displayed his usual good taste in the overture and music throughout, which embrace morceaux from the Opera of "Un Ballo in Maschera," cleverly intermingled with some popular airs recently sung by Mrs. Florence. The pantomime is likely to have a long and successful run, judging from the crowded houses every night.

TIMBER MERCHANTS' POCKET COMPANION.—We have received a card with tables and title as above by Mr. Charles Jane, of Wisbech, author of the Calculator, and it appears to be presented gratis.

UNPROTECTED STAGE FOOTLIGHTS.—The lessees of theatres in general should adopt the precautionary measures against accident by fire from the footlights that have been initiated by the lessee of the new Paris opera house, where we are informed that "the footlights are to be constructed that if a cambric pocket-handkerchief be placed above the burners it will remain uninjured."

GEOLOGY AND ITS APPLICATION TO THE ARTS.—A systematic course of thirty lectures on this subject will be commenced by Professor Jukes, F.R.S., at the Museum of Irish Industry, on the 6th instant, at 4 o'clock, p.m.

The Commissioners of National Education are about still further extending the accommodation at the head metropolitan establishment. Two important ranges, each about 140 feet in length, identical on plan and in general design, have been commenced at the rear of the present schools, and contiguous to the practising establishment recently erected opposite Deverill-place. These are intended for additional class and lecture-rooms for males and females respectively, with a central staircase and open arcades for recreation in each. The roofs display chamfered timbers and brackets stained and varnished. The material to be employed is red stock brick with Bath stone dressings, and the general character of the elevation will be somewhat similar to that above named. The drawings have been furnished by the Architect to Board of Public Works, and Mr. John Nolan of Meredyth-place has obtained the contract at about £8000.

A new church is to be built at Glengarriffe, county Cork, according to drawings by the architects to Ecclesiastical Commissioners. Tenders must be in against 16th inst. Various works are also announced to be executed at the churches of Innistigue, county Kilkenny, Donoghmore, Stradbally, Queen's county, and Kinsalebeg, county Waterford. Tenders to same date.

A new front of Byzantine character, and presenting on ground floor three segmental-headed openings—two of which are windows, and one a doorway at side—with foliated string course, &c., in very superior cut stone from the Crowhill (Glasgow) quarries, is being executed together with some internal alterations and additions at the house No. 16, College-green, for the Scottish Provident Institution. Mr. Murray architect; Mr. John Nolan builder.

The Kingstown Improvement Act, 24 and 25 Vict., sess. 1861, for transferring from the grand jury of the county of Dublin to the Commissioners of Kingstown the management of the roads and bridges in the township, and for improving same, comes into operation on this day.

It was resolved at a meeting held in Salford to erect a statue of the late Prince Consort in Peel Park.

DUNDALK AND ENNISKILLEN RAILWAY.—At a meeting of the Dundalk Town Commissioners, a discussion arose as to what steps should be taken to oppose the contemplated extension of this line from its present terminus to the quays of Dundalk. Mr. Neville, the County Surveyor, produced a map of the proposed extension, and pointed out the great injury that would arise to the public by its construction. He said time for talk had gone by and the time for action had arrived, and that it was absolutely requisite most energetic measures should be adopted to prevent the bill passing in its present shape. The Commissioners then decided to give instructions to oppose the passing of this measure through Parliament. The bill, carried, will close up one of the most important thoroughfares now leading to the Dundalk Steam Packet Company's quays, and the line will pass over another street in which there is considerable traffic at the road level.

LIFE BOAT EXPENSES.—During the past two years (1860-61), the National Life Boat Institution has incurred expenses amounting to £22,650 on various Life Boat Establishments on the Coasts of England, Scotland, and Ireland. In the same period the life-boats of the Institution have been instrumental in rescuing 500 persons from different shipwrecks on the coasts of the United Kingdom. For these and other life-boat services, the Institution has voted £1,893 as rewards to the crews of the life-boats. It has also granted rewards amounting to £515 10s. for saving 878 shipwrecked persons by shore-boats and other means, making a total of 871 persons saved from a watery grave during the last two years. The number of lives saved by the life-boats of the Society, and others means, since its formation, is 12,298, for which services 82 gold medals, 704 silver medals, and £13,250 in cash, have been paid in rewards. The Institution has also expended £57,200 on life-boats, life-boat transporting-carriages, and boat-houses. The public cannot but sympathise with the vigorous efforts now being made by this Institution, to save the lives of shipwrecked crews. Their help was never more needed than at the present time, when, through the extraordinary exertions the Society has made within the past few years, it has now one hundred and twenty-one Life-boats under its management, for the maintenance of which, in a state of thorough efficiency, a large permanent annual income is absolutely needed, if its humane mission is to be perpetuated. We may add that contributions are received for this important and truly National Life-boat Institution, by all the Bankers in the United Kingdom; and by the Secretary, Richard Lewis, Esq., at the Institution, 14, John-street, Adelphi, London.

NOTICE.

Post-office Orders and Remittances for this Publication should be made payable to MR. PETER ROE, Printer and Publisher, 42, MABBOT-STREET, DUBLIN.

The Dublin Builder.

VOL. IV.—No. 50.

SANITARY REFORM.

IN our last number we alluded to the deficiency of the sanitary arrangements of our cities and towns generally, and we are pleased to see that there is now a movement on foot for the energetic application of remedial measures. Cleanliness is said to be akin to godliness, and if so, it must be palpable that its observance by a community will materially affect its moral as well as its physical welfare, and that, therefore, any action to ensure it must enhance the value of the philanthropic spirit that suggests it. Some years ago there existed, in this city, an association for this purpose, under the presidency of Sir Edward Borough, Bart.—a gentleman who ever proved himself a devoted friend to effectual sanitary discipline—and it for a lengthened period pursued its labours somewhat successfully. But, for the development of so grand a scheme as the total sanitary regeneration of a city that had fallen into a state of such notorious filth that the attention and disgust of every visitor was attracted thereto, some more powerful lever than the mere combined action of a few zealous individuals was necessary, and it, therefore, after protracted lingerings, ceased to exist. The birth of a successor has, however, been announced, and we may say that its public baptism will, in a few days, take place at a meeting to be held in the hall of the Operative Bakers' Society in Upper Bridge-street, and no doubt it is the intention of its guardians to repeat the ceremony in the hall of each of the trades' societies in Dublin. An aggregate meeting will then—we reasonably presume—follow. This mode of procedure we believe to be very judicious, as it will first familiarise the subject to the great mass of the people for whose benefit the movement is mainly intended, and having instructed them at their own hearths on its importance, the sense of appreciation by all may then be taken, and the extent of probable co-operation estimated.

"Irish dirt" is an expression on the tip of every Englishman's tongue; and our people must not tacitly continue to writhe under the stigma, whether deservedly elicited to the extent applied or not. Before coming to the statistical features comprehended under this question, we must again revert to one which is an outrage both on sanitary rules and on those of common decency, as before suggested by us—viz., the disgraceful condition of our lanes and alleys. Immediately adjoining, and in full view of some of our principal and most populous thoroughfares, inducements are positively presented for acts which "shock all common sense," and the perpetration of which subject to the public gaze, is incompatible with the age we live in. Nature has her necessities, and it would be false delicacy to mince the question; but the accommodation in Dublin for ministering thereto with becoming modesty is shamefully defective. An occasional retiring-place, as designed and manufactured by M^r Farlane and Co., George Smith and Co., of Glasgow, &c., &c., and as extensively distributed throughout London and other towns, would obviate this; yet there are but two of these in or near our large city, one at back of Ship-st. Barracks, and another at the entrance to Prospect Cemetery, Glasnevin. Very many advantageous sites are available; and we would strongly urge on this new Sanitary Reform Committee—who shall have our hearty co-operation—the necessity of remedying this evil at once.

A pamphlet before us—we believe submitted by the promoters of the movement—and entitled "The Towns' Improvement Act and Sanitary Reform in Ireland," commences by advocating as an indispensable requisite to the correct ascertaining of results of sanitary observance or the reverse, "a perfect registration of births, deaths, and marriages," adding that, "the readers of the admirable reports of the English and Scotch Registrars-General are aware how effectively they expose and publish cases of social and sanitary delinquency, which had otherwise remained concealed and unknown. Surveying the entire country, firstly as one nation, and then again in detail, district by district, minutely analyzing the vital statistics of the whole, and all of its parts, they lay bare what is diseased, and they prove the healthy."

From the same authority we learn that "the Registrar-General of England, in his report for 1859, estimates the waste of human life that year in England, by sanitary delinquency, at over 118,000."

Here is, indeed, a powerful argument, based on the authority of official returns, against those who are hardly enough to state that sanitary neglect has nothing whatever to do with the duration of human life. And it is quickly followed by another; for in London, where two millions and a half of people are congregated into one vast focus, an unquestionable evidence of the effect of cleanliness on health is adduced in the fact, that at the period prior to the revolu-

tion, and when the streets were narrow, the sewerage bad, the water ditto, and the people dirty, *seven per cent.* was the average mortality; whereas, now, with modern improvements and a rigid sanitary regime, about *two and a-half per cent.* is the figure. This, however, refers to the total of the population, but in certain sub-districts, the amount varies considerably as compared with others, and according to their relative positions and advantages. When other contemplated improvements—such as the purification and embankment of the Thames, which during the summer months is a fetid stream—shall have been effected, may we not hope to see the average still further reduced?

Turning now to Dublin we find that—"In 1841 returns were obtained from all the city and suburban cemeteries and graveyards, of the interments between the 7th June, 1839, and the 6th June, 1841—those of citizens were found to number 13,516, an annual mortality of 6,758. In 1851 the Census Commissioners obtained a similar return for the ten preceding years, when the total was found to be 91,511, of which 80,112 were citizens, or 8,011 per annum." But it must here be noted "that some citizens are removed to country churchyards for interment, and thus cannot be included in the city burial returns." In the census report for 1841 Mr. Wilde, to estimate approximately the actual mortality for one year, took the death returns for 1841, which having been filled on the 6th of June of that year, for the five months and six days only immediately preceding, may be considered as nearly correct; to this he added one-half of the returns for 1840; next to 1841 in accuracy, with a fractional allowance for the twenty-five days wanting to complete the half year in '41. This gave him the closest approximation to the real mortality in his power to obtain; and in that way the mortality of Dublin for the year 1840-41, a year of average health, was found to be 7,810. In the census of 1851 the death returns for the year immediately preceding, 1850, amounted to 9,285, showing, as in '41, that the burial returns did not give the entire mortality. Those for '31-'41 amounted, in the aggregate, to 66,494, or 6,649 for an average year on the then population, giving a death rate of 2.865 per cent. The returns for '41-'51 reached an aggregate of 73,892—that is to say, 622 less than the burial returns gave for an average year. Even with these figures, erroneously low, we have a mortality at the rate of 2.86 per cent. Below this it is impossible to place it; how much higher registration can alone determine." . . . There can be no good reason shown why Dublin, having her fine squares and aristocratic streets, should not be as healthy as the worst district in London—the eastern; in that the mortality is 1 in 41, in Dublin it is 1 in 34! But although no good reason can be shown, there can, nevertheless, some reason be given. Mr. Wilde's statistics show the mortality in the poorer parts of Dublin as in the proportion of 8 to 1 to that in the wealthy. No such disproportion exists in London. The west end differs from the eastern, and from the parishes of Southwark, but as 45 does from 41, proving incontestably how much greater care is taken of the poorer inhabitants in one city than in the other. . . . Dublin has, during the last session of Parliament, obtained ample powers for providing herself with pure water, and effecting other necessary sanitary reforms. May we venture to point out to the members of our corporation, the great, the serious responsibilities of their position. That it is as they wisely and efficiently carry out those reforms, or as they do not do so, they will be the instruments in saving or in sacrificing the lives annually of hundreds of their fellow-citizens. . . . In the Dublin Town Council, there are many of liberal education, and few, we believe, destitute of generous impulses, to lead them to labour, and if need be, make personal sacrifices for the welfare of their poorer brethren. Elevation of mind, whether by nature or education, confers, with all its privileges, the duty of labouring in fields of usefulness neglected by all others, and of leading onward the less favoured mass of mankind in the path of improvement. Citizens of this class who believe Dublin, as well as it ought to be, or as it is in their power to make it, can maintain that belief, but, by refusing to study the statistics of our mortality and the facts of sanitary science."

We shall watch with some interest the proceedings of this committee, and hope to be able to record the wholesome results of action, as well as the mere elucidation of theories.

STRIKE AT THE EXHIBITION BUILDING.—The workmen engaged upon the east dome of the Exhibition building struck work on Monday, and those engaged on the western dome were to leave work yesterday. These men are dissatisfied with the amount of wages they are receiving, considering the number of hours they work per day, the great amount of work expected from them, and the dangerous nature of their employment. This dissatisfaction has existed for some time, but finding no attention had been paid to their complaints, they at last resolved to strike, as the only way of obtaining attention to their grievance. The strike is not expected to be of very long duration, as no doubt some arrangement will be come to between the contractor and the men. [The contractors subsequently acceded to the demand of an additional 6d. per diem.—Ed.]

ON ENTERING ARCHITECTURAL PRACTICE.*

(Continued from page 8.)

MANY men, I think, postpone this step too long. And I believe that, of the two errors, a too early start is less likely to be fatal to success than a too long postponement of one. The main essentials for success in practice are—first, to be competent; and secondly, to have the reputation of being so. I have already told you that I think any one devoid of the natural gifts necessary to success had better never enter the race at all. I have now to add that, so soon as these gifts have been sufficiently trained and strengthened, and enough of knowledge and of such experience as can be got from engaging on other men's work has been obtained for a man to feel himself competent to act as an architect, the less he delays about trying to gain a reputation the better.

It is difficult to attempt to say what is the degree of information and experience requisite to enable a man safely to commence practice. Those who have had the good fortune to have a good and rather prolonged general education may ordinarily safely commence after fewer years of special training than others; so that I do not think it any gain of time, while it is certainly a loss of everything else, to begin your profession very young. I believe a man who brings a studious and well-stored mind to the work may fit himself for practice in, perhaps, from four to six years; but that ordinarily from six to eight or even ten years are requisite for a man to gain knowledge or experience enough to begin on. This I know, however, that the quickest school is responsible practice on your own account. The sternest teacher is necessity; and that one learns more in three months from one's first work than in three years from watching or even engaging in that of another man.

A principal reason for advising that a start in practice be made as early as is prudent lies in the very arduous nature of the process of getting into practice. It will probably be found by you incomparably the hardest and most prolonged effort of your lives; and you should, therefore, engage in it with as few cares, as light a burden of years and responsibilities, and as unbroken a circle of friends as you can command; for every year you wait threatens to add to the weights and diminish the number of friends and helpers.

Every year, too, that you become accustomed to the work of an office and the regular receipt of an income makes you less inclined than before to venture upon the uncertainties of a commencement of practice: and often makes you unfit for the amount of waiting and watching that must fall to your lot.

Let me then urge you all, while remaining as improvers or assistants in offices, or as clerks of works, or so forth, for a certain time after your articles are completed, to treat all that as a portion of your preliminary or student life, and to look forward to actual responsible practice if you are ever going to engage in it as your real work.

We will now suppose that a young student, after three or four years' apprenticeship, a year on the Continent, and one, or two, or three, or more years spent in a builder's workshops, and in various offices as an improver or as an assistant, thinks of commencing practice. I think the first essential for him is that he must somehow have or get the means of procuring at least a bare livelihood, independent of any architectural commissions whatever. Some men are fortunate enough to be able to secure this through the assistance of their parents or friends, or from their own property. To those who are not I would recommend the adoption of some sort of work which can be done in their own chambers, and which is, to say the least, not inconsistent with their being architects on their own account. Measuring and taking out of quantities supplies the requirement with some, and leads a few here and there to abandon architecture entirely, and take to surveying; for which reason, and for the reason that it mixes a man up in an undesirable way with builders, I do not think that it is so good as other things—such as drawing on wood, lithography, writing for the press, short-hand writing, etching, engraving, tinting views, making perspective outlines, and the like. The best source of income, however, and one which, fortunately, is very often available for a clever young man, is a partial connection with some office where he has been brought up and employed, and in which some department of business has more or less fallen into his hands. From some source, however, an income is essential; as an architect—in fact, any professional man—can never hope to enter practice without passing through a period of greater or less strength in which he does nothing, or, even if he does work, receives nothing. It is also essential on another ground—namely, that, without some resource which will serve for a livelihood at least, a young man cannot feel a proper independence of position in treating with his first clients, and will, if hard pressed by them, which is too often the lot of beginners, feel obliged to give way where he ought to be firm; and will promise impossibilities, or will undertake work at rates below its recognized value—things which it may take him many years to escape from, or which may possibly even act injuriously on him through his whole career.

The next essential is what is called a connection—that is to say, a circle of relatives, friends, and acquaintances, who shall know so much of you as that you exist, and that you have started as an architect, or an architect and surveyor, if you are competent to call yourself that; and who shall have a not altogether unfavourable impression of your personal character and professional ability.

A man's best friend is ordinarily his father; and of course the most valuable of all positions for a young man is to be son of an architect in good practice, and to be introduced by him to practice. This, however, is a rare case; but to have a father living and influential, and to have elder brothers in good positions in life, is most valuable to a young man. I do not think that ordinarily other relatives are often of use, till after a man has got over the greater part or the whole of his difficulties; and, although men who have influential relatives often speak and feel bitterly because they are not helped as they think they ought to be, I really think there is a very easy and natural solution of the apparent unkindness, if we think for a moment of the circumstances of relatives. In the first place, then, relatives, such as uncles, elder cousins, and the like, are ordinarily likely to rate you at below your real value. They knew you, perhaps, as boys, and remember you as such: they probably will almost forget the length of time in which you have been acquiring professional knowledge and experience; or, at best, they have the means of knowing it accurately, and will not rate it at longer than it has been, which strangers may possibly do. Again, relatives are not free to leave you or to express displeasure against you if you do not please them, as strangers are; for if they did so there would be a chance of a family quarrel; and many a man would sooner encounter the sort of coolness which will be felt because he puts architectural work into the hands of a stranger, passing by a relative, than place himself in the position of opening business relations with a young man whose business capabilities are untried, and whom it will be impossible, in case of dissatisfaction, to dismiss without raising such a quarrel. Lastly, I regret to have to add that it only too often happens that young men will not exert themselves and do their very best for their relations as they will for strangers; and many persons knowing this, and aware of the great importance of having their business thoroughly well done, shrink from venturing to employ a relative, unless they actually know his business character to be thoroughly reliable and established. The same observations apply to old family friends; and the first part of them apply to all persons, who knew you well when boys, and have known little of you since. All this class of friends must be looked upon as ultimately valuable, but as not ordinarily the first to be of service to you.

I believe that the most valuable elements of a good connexion, after a man's father and brothers, are the personal friends and acquaintances of his father and mother; not only the most intimate, but also those who may be removed, or but seldom seen,—old schoolfellows, old college friends, and business acquaintances. These, if they have esteemed the father, be it half a century ago, will make acquaintance with the son with pleasure and good-will, and will feel little or none of the difficulty as to employing him which I have referred to as existing among relatives. Then come your own personal friends; school and college friends, if they are themselves doing well, will often be most valuable to you, and so will casual acquaintances. In fact, it is well to remember that in the matter of connexion your great point is to be known, and known to some extent favourably, by a great many people; but that it is not at all essential you should be intimately known to all or any of them. Let me add also that it is as an architect you must be known if you want to get practice. The most extensive reputation as the best drill in your rifle club, or the best dancer in twenty ball-rooms, or the best singer at your choral society, will, however many friends it may bring you, bring you little business, compared with a comparatively limited reputation as an architect. (?)

Let me add, in the matter of connexion, that to be well and favourably known among members of your own profession is of great advantage to you in many ways. And now let me repeat, I think no one ought to proceed to educate himself as an architect unless he, or his friends for him, see some reasonable prospect of his having acquaintances enough accessible to form the nucleus of a fairly extensive business connexion, which will include some tolerably influential persons. To such nucleus your own exertions, and above all your professional successes, will add fresh acquaintances; while it is just possible that you may have the good fortune to get a connexion, or to augment the one you have, out of the ranks of the general public. This, I think, must often happen, when it does occur, in one of four ways; either by successful works already done, or by professional introduction, by writing or by competition: that is to say, first you are likely to find that, when you have actually got a job and done it, your connexion will be extended; and, sooner or later, work will come to you from persons who are personally perfect strangers, but who

* The substance of a paper read by Mr. T. R. Smith, at a meeting of the Architectural Association, December 6th, 1861.

have seen your building and have heard that you have satisfied your employers. Secondly, you have a prospect of success if you are so fortunate and so skilful as to be introduced to some position, either a public appointment or a post under the auspices of an architect of great standing, which will give you importances in the eyes of the public. Many, perhaps most, of the civil engineers get their professional position in this way; but there are comparatively so few opportunities of the sort in architecture, that the thing is not of common occurrence. Still it does happen,—as, for example, there are several gentlemen now in good positions who owe them to their having held important posts under the late Sir Charles Barry, on the Houses of Parliament. Lastly, you may also succeed with perfect strangers, if you have ability and energy, and cash, and good fortune enough to publish a really good and really successful book, or to gain a good competition; but these are uncertain methods, especially the last-named one—the competition.

There are two methods of getting into practice, besides that of “working up your connexion,” which are attractive to the eyes of young men, but are, I believe, really of small value to a beginner. One is the obtaining some public appointment; the other is obtaining a partnership with an experienced man. Now, the truth of the matter is—first, that both these things are thought so well of that no beginner need count on securing either the one or the other; and, secondly, that they, both of them, are things which are extremely unlikely to suit a beginner if he could get them. A public appointment obtains! early, more often than not prevents a man from exerting himself as he otherwise would; and so commonly cuts short what might have been a successful career. A partnership among architects is so very, very seldom a lasting connexion, and for some reason or other is all but invariably dissolved with mutual disadvantage after a few years at longest, that I am quite convinced architecture ought to be looked upon as a profession no more suited to partnership than the profession of a barrister or a consulting physician; and that the less a young man thinks of such a thing the better.

(To be continued.)

THE WALLS AND ROWS OF CHESTER.

Mr. S. HUGGINS, architect, read an interesting paper on this subject at a recent meeting of the Liverpool Architectural and Archaeological Society, in the course of which he said, that Chester was a gem of cities, and a gem beautifully set. Its natural site alone, for its native attractions, was worthy of a high degree of admiration. But here had been art and science, history and legend, Roman castrametation and Roman mythology, Christian monachism, feudalism and chivalry, Protestantism and dissent, civil and municipal institutions, and happy homes interpolated on the fair face of nature—on the divine sky and the immortal year, rendering the spot more beautiful and interesting than any Eden or Tempe of pure nature could possibly be. Chester was haunted by a thousand lofty or affecting reminiscences for the thoughtful and susceptible visitor. Almost every object that met the eye was tinged with the magic of the past, rich in the beauty of history and legend, and eloquent with touching memories—with memories of times which, coming to us through the grey mists of poetry and fiction, possessed a beauty and glory beside which the great triumphs of the present age, soul-stirring as they were, looked somewhat prosaic. Here were harmoniously mingling together monuments, memorials, symbols of past and widely-different states of social existence—relics and mementoes of that succession of races, of Celt and Roman, of Saxon and Norman, which had played their renowned parts on our island, and of those momentous events to which Britain was indebted for her present greatness—events which, arising out of the sterling national character, its love of liberty and sworn enmity to oppression and wrong, every true Englishman looked upon with pride as the sources of his present privileges. The most important though not the most unique features of the city, that which contributed most to its beauty and enabled you the better to behold and appreciate all others, was the Walls, which, though the work of man, were as vital as the rock on which they were built; as much recognised by nature as the trees which clung to or cast their shadow on them. The walls were said to have been originally built by the Romans, and there was a Roman grandeur in their conception which greatly favoured the supposition. They presented in many parts a most imposing aspect to the surrounding localities, and gave a grandeur to the outskirts of the city which few masonic constructions could have secured. But it was their ministry to the pleasure of the inhabitants by the delightful promenade they afforded, in which consisted their chief value. Though no longer needful for defence, they were anything but useless. There was scarcely a more delightful promenade in England, for the charms which on either hand presented themselves; and insensible must he be who would not be interested or at least amused by the striking contrasts and diversity of objects, pleasing or deeply interesting scenes, he witnessed. A walk round the walls of Chester was like a dream, for the strange variety and mixture of objects of every kinds and style and form,

and of every date, from the ephemeral erection of yesterday to the historic fane of ten centuries ago, that passed in array before you. Here you were greeted by the harsh utilitarian genius of the age—there you communed with the hoar spirit of antiquity: on this side were embodiments of the present; on that, mementoes of the past, in gazing upon which you were looking back into time as well as out upon space. Repose and quiet within, bustle and noise without, and then in a few minutes the conditions were reversed. One moment you encountered an object of poetic beauty, the next presented you with something of utilitarian homeliness. On one side you might step out on to the green turf, on the other you were in a region some hundred feet above it, high over roofs, and chimneys, and tree-tops. If you were among brick and mortar objects chiefly, these, from the varied position of the streets and houses, with respect to the walls on which you were walking, the river, the canal, and to each other, were so infinitely varied in their arrangement and disposition, and withal so pleasantly, so romantically situated, so blended with natural objects, so garlanded with grass and flowers, that you were in no hurry to exchange their vicinity for that of more complete nature. The quiet retired nooks of houses and backs of houses, with their tiny gardens that abutted upon these walls, were truly enchanting. When you passed on, however, you experienced no regret, for something as beautiful—or no less interesting—was sure to present itself. He entered into a particular and critical review of the cathedral as the most important object of art that greeted the visitor in his elevated walk, remarking that though it bore strong marks of the ravages of time and weather, yet their despoiling fingers, he considered, had given it more than they had taken away, and lent a new grace to the beauty that still remained. St. John's Church, which was visible from many points, he eulogised as a fine specimen of Norman and pointed Gothic. The ancient choir and lady chapel at the east end, now abandoned as a ruin, was, even in its present state, one of the most graceful objects anywhere to be met with, and went to prove that the works of the architect into which the vital spark of beauty had been once breathed will long retain the impress of its spirit, and, like the fairest works of the Creator, be beautiful even in dissolution. He regretted that, in the important restorations now going on, faithfulness in adhering to the original should have gone to the extent of restoring its defects, as regarded the present destination of the edifice as a Protestant church; and that the opportunity should have been neglected of so far modifying the plan as to remedy the great deficiency of light, which could easily have been done by piercing a few of the blind arcades of the clerestory, which would not in the least have interfered with the style. Could the original architects, who belonged to a fraternity remarkable for nothing more than their strict attention to utilitarian requirements in their works, be brought from their graves, they would smile at our solicitude to preserve what they would at any moment have sacrificed to fitness—especially if made aware of the great intervening event which we call the Reformation. He noticed a variety of other objects and scenes which the Walls commanded, and concluded his remarks upon the latter by observing that they were by no means an obsolete feature. Nothing could be more suggestive to the projector of a new town, or improver and beautifier of an old one, than the Walls of Chester. A characteristic of Chester that deserved particular notice in any account of its architecture was that, owing to the apparent contentedness of the wealthy to dwell among their poorer fellow-citizens, it contained houses of all classes, from the highest to the lowest, all mixed up together in the most easy and natural manner imaginable. This, he considered, was one great source of the picturesqueness of the place, and remarked that there was something in it pleasing to the moral sense as well as to the sense of beauty. It gave, he thought, a sort of perfection to a neighbourhood when it was inhabited by a variety of classes that enabled an individual, whatever his rank in life, who felt as he ought to feel, more at home, more embosomed in human society, than when he was among his own class only, isolated from all others. He entered into an architectural and critical notice of the Rows, which, unique as they were, and strangely unproductive as they had been of any modern progeny, were, in their corrected idealised form, as applicable in the present day to the streets of London, Liverpool, or Manchester as they ever were in Chester, and where their introduction would relieve architects from the necessity under which they at present lay, through the requirements of shopkeepers, of producing ugliness in their shop designs. Chester, though eminent for the beautiful, was somewhat behind in the useful. It was wanting in sanitary regulations. In some localities it was too densely built upon, and contained houses deficient of light and air. It had a handsome railway station, but that was not connected with the city by a proper thoroughfare. There was a deficiency of bridges connecting the two sides of the river. There was a gate wanting to connect the walls across Grosvenor-street. He remarked upon the character and position of the various public buildings, and expressed his surprise at the meanness of the building devoted to the post-office, a public department which, from its importance, might be expected to be located in one of the finest edifices in the city.

THE BUILDING FOR THE INTERNATIONAL EXHIBITION OF 1862.

WHATEVER opinion we may hold of the architectural features of the Exhibition, there is undoubtedly no grander sight in London than the fierce struggle which the contractors with their swarm of strong-armed workmen are now carrying on against time. All hope of distancing their stern antagonist by covering in the muddy swamp on or before the first of January next has been given up, but the men stick with English tenacity to their work, and all day long the clang of hammered iron, the whistle of the steam-engine, the roar of the forge, the hissing of the steam-saws, and the hum of busy labor reveal the desperate nature of the strife and the unflagging energy with which it is sustained.

The fascination of such a scene of unparalleled activity is such, that we are not surprised at visitors running all risks to enjoy it. The dangers of falling about the building are neither few nor far between. A quick eye and ear, however essential, cannot always ensure safe transit through the intricate piles of materials. Upon almost every column and shed placards are posted, warning visitors venturing in places over which the workmen are engaged. This seems a very polite way of telling them to keep away altogether, for there is hardly a square yard where such peril does not overshadow them. With a Damocles' sword constantly over his head, and risk in every shape and guise for a body-guard, the strong-nerved man may, heedless of the snakelike, swiftly-gliding ropes and the flutter of red and blue signal flags, loiter about, walk the planks which bridge the slushy roadways, and even calmly enter those slices of a South American forest which form the scaffolding for the erection of the stupendous domes. The fall of pieces of glass, and occasionally of a putty-knife from the roof, the clearance of waste timber from the same height, a slight shower of bricks or a spattering of mortar, are but a few of the accidents to which every man who does not even venture above *terra firma*, is momentarily exposed, spite of every precaution of the foremen, within that fenced enclosure. Those of a nervous timid nature had better postpone their visit until the turmoil is over, and the building is made ready for public inspection.

Everything is going on with steady mechanical regularity. The succession of different trades upon all portions of the building is kept up with unwavering speed. The carpenter followed the bricklayer, even as he rode in the foot-prints of the excavator; and now glaziers are scattered broad-cast over the acres of sashes, and plasterers are coating the interior of the brick walls. The large courts between the nave and the picture-gallery next Cromwell-road, each 250 feet by 200 feet, are roofed, and in a few days, will be glazed. These courts are roofed by four parallel 50-foot iron roofs, 47 feet high to the feet of rafters. They are slight in construction, but scientifically strong. They are formed, as it were, of double-strutted trussed principal rafters, with a tie-rod from the root of one truss to the other. They are upon the same principle as that adopted for the roof of the picture gallery. The appearance of these courts is now very like that of a large railway shed, and there is as yet no indication that the architecture of them will detract the eyes of visitors from the contemplation of objects exhibited there.

The smaller courts north of the nave are the least forward portion of the building, but there the two flights of staircase are being built upon strong iron bearers, and the floor of the horticultural arcades is being laid. The columns are also in their places; in a few weeks, the roofs will be fixed, and the domes will then remain the only uncovered portion of the building. The north and south transept at each end of the building are almost finished, and the partitions are being fixed to divide the several offices situated immediately inside the eastern and western walls. The gallery floors are laid, as also is the flooring of the space beneath them, which is connected, by an open arcade, with the main building. Here the haste with which the work is driven on is very apparent. The boards are laid irregularly, sometimes with an inch aperture between them, as we suppose was intended, and varying from that to nothing at all.

A letter appeared in our columns the week before last directing attention to the slight nature of this portion of the work. We have visited the building expressly to test the accuracy of the statement made. Although we saw no joists 2 feet apart, still their distance, varying from 1 foot 8 inches to 1 foot 4 inches from centre to centre, required something more than 1-inch flooring to cover them, especially when we consider the traffic which they will next year have to stand. The inequality of the distances between the joists, the unworkmanlike manner in which they are lapped upon the plates, and the uneven surface of the floor are due, perhaps, to the pressure put upon the contractors, but the slightness of the boards admits of no such excuse, and the public ought not to be exposed to unnecessary risk in order to effect a small saving in the erection of the building. An ugly structure may be tolerated for the sake of its contents, but an insecure floor, or one which continuous traffic will render so, cannot, upon any consideration, be endured.

The domes are really the only portions in which the contractors are behind their time; but every allowance should be made for them, when we take into account the novelty of their construction, their

enormous size, and the stoppage which bad weather has already and may on any future day necessitate. The delay, we are certain, has not been consequent upon anything which human foresight or energy could have obviated. When it became apparent that the Thames Iron Company, even with their unusual facilities, could not get on sufficiently fast, Mr. Ashton at once undertook the responsibility of constructing the western dome for them. On plan the space beneath the domes is a square with the corners cut off. At each of these eight angles there is a group of four iron columns, the largest of which, 95 feet high, is 2 feet in diameter, with 7-8ths of an inch of metal. Adjoining the domes, or rather the space below them, upon the four principal sides wrought-iron groined ribs are fixed with iron rafters and uprights, and radial pieces 5 feet apart. They occupy the place of the last bay of nave and transepts. The centre of this groin, on each side, forms the meeting point of the two sides into which the width of nave and transepts is divided. Thus, a duodecagonal base is established for the dome, 160 feet in diameter. These ribs are further strengthened by diagonal ties, which run from the caps of the columns to the bases of the adjoining ones. The secure fixing of the ponderous pieces of metal constituting these ribs has been the main cause of the delay. The wooden stiffening framework which forms the drum of the dome is now being hoisted to its place in the eastern dome, but the immense quantity of scaffolding utterly precludes any one from judging of the progress of the work.

The exterior of the building is being pushed rapidly forward, and strikes us as being even more ugly than the views led us to anticipate. In the first place, the spectator cannot get sufficiently far off to see it as it has been pictorially represented, and certainly distance would lend enchantment to the view. The blank upper portions of the arcades in Cromwell-road are cumbrous in the extreme, and the device of filling them with mosaic, is a mere tasteless and wasteful expedient. One might as well decorate a huge bloated prize-fighter with Maltese jewellery, as throw away mosaic upon this shapeless mass of brickwork, which contains not a single feature that an educated eye can care to look twice upon. It is "imposing" certainly, but not by means of its beauty or grace or proportions. The three great entrance arches are big and high but nothing more. We have been told that they resemble the portals of St. John Lateran. They do so, but only as Jones, Brown, or Robinson are like Shakespeare—in their size. In fact size seems by the admirers of this building to have the property of charity in covering a multitude of sins. We are told to admire the dome because of its size, that the columns end to end, will reach hance to any where. Comparisons with famous buildings are made only in reference to dimensions, with an attempted inference that it is, consequently, in all respects superior to them, whereas although in material the largest, it is in the display of artistic power, the smallest building ever erected. The nave, as we have before now said, is decidedly superior to the main avenue in the building of 1851, and possesses many elements of beauty, but there is nothing in harmony with it elsewhere, until we get to the machinery sheds. The design of the nave roof and that over the courts are in violent and painful contrast, as much so as if the one were painted blue and the other red.

We have not space now to notice fully the shortcomings of the façades, nor would it be altogether fair to the designer to criticise his half-finished work. We have but mentioned the impressions which the completed portions, looked at by themselves, had upon us, and we cannot conceal the mortification we feel that foreign architects should consider this building an example of the height to which architecture has been brought in 1862. It is a marvel of rapid execution, a rare example of mechanical skill, but its exterior, like Socrates' head and the Sileni caskets, would never lead one to suspect the treasures that will be deposited in it.

The "annexe," as we have before said, is a very fine piece of temporary work, and we are glad that the Commissioners, to meet the large demand for space, have decided upon building upon the corresponding piece of ground to the east of the Horticultural Society's grounds, and that the contractors have begun the work with energy.

The plot of ground is 775 feet long by 200 feet broad, extending from the porch of the Horticultural grounds northwards to the commencement of the circular series of arcades, and eastwards from the back of the arcades to the Exhibition road. A subway under the Horticultural entrance will lead to it. At its commencement it will be but 50 feet broad, with a court 100 feet long by 50 feet wide on either side. An oblong court 350 feet long by 50 feet wide occupies the centre of the ground, with 50 feet of shed all round it. This disposes of all the ground to within 150 feet of the northern extremity, which is divided into four 50-foot parallel sheds, as on the other side of the gardens. The whole of the roofing is on the same principle as that of the other annexe; arch-formed ribs made of planks nailed together, and breaking joint all through, support a ridge and valley roof, which is partly glazed and partly covered with asphalted felt. Many of these ribs are now fixed, and stacks of them ready prepared have been transported to the grounds. In a few weeks, therefore, we may expect to see even this additional work completed.—*Building News.*

IMPORTANT MEASUREMENT QUESTION.

THE "ENGLISH OR STANDARD," *versus* THE "IRISH," PERCH.

SUB-CONTRACTS between employers and workmen, however productive of mutual advantage, are liable to abuse, sometimes the cause of embittered feelings between both parties; generally speaking, the workman overdraws the amount of his contract, and he is dissatisfied in the end; of course there are many and honourable exceptions, but we speak of the rule not the exception. In cases where the contract is, by measurement, the loopholes and allowances which a few and isolated measurers adopt can scarcely be controlled by any agreement between the parties. Of latter years the cube yard has become almost the sole and recognized medium for measurement of masonry and brick-work, but workmen are not as yet sufficiently conversant with it as a measure to cause its adoption between themselves and their employers, therefore its general use is confined solely to builders' own quantities.

Every one who understands anything at all of building—we need not adduce either architect or builder—knows what is conveyed by the term perch-work—that is 21 feet long, 12 inches high, and 18 or 9 inches thick for masonry or brickwork respectively. This is established by immemorial usage, and we are positive there is not an artisan who will not acknowledge, and so far as is the practice or usage of Dublin that he recognizes no other, the English or standard perch being a dead letter. We are led into these remarks by a circumstance which has fallen under our notice within the last few days. A respectable builder in considerable practice made a contract with a working mason (who had been in his employment for a number of years), to execute the masonry and brick-work (by the perch, and which he had frequently done on former occasions), of a large building in the suburbs. Being acclimated, if we may so call it, in his establishment, the builder did not exercise a sufficient degree of caution, and allowed the works to be commenced upon what we must designate a very loose and imperfect agreement; possibly he placed too implicit a reliance upon him who had been in his employment so many years. The works, however, were executed. The builder frequently requested that they should be measured, but was invariably met by the reply, "Sure there's nothin' comin' and what's the use." Thus matters lay dormant for many months. The building was completed and upon the point of being given up, when the sub-contractor, unknown to his employer, brought in a party practising as a measurer, who, in the absence of a legal agreement, was directed to have the works measured by the short or English perch, *which the law declares the standard*. The consequence may be easily imagined, for, instead of the sub-contractor being in debt to his employer, which was really the case, an attorney's letter was forwarded, threatening proceedings in the superior courts for a large sum, if the demand was not instantly paid. We believe the builder, rather than undergo the anxiety, torture, and loss which must eventually accrue in a contest with a pauper, was advised to sacrifice a considerable sum of money, which, in our opinion, would have been far better expended in making an example of what, designated by its mildest term, must be deemed extortion.

It is to be regretted that any one practising measurement, without a sufficient knowledge of the circumstances under which the agreement was made, would be duped to be the medium of an unjust claim, for we know the surveyors of Dublin, as a class, are too honourable to countenance an unfair demand, and we can scarcely think, save in utter ignorance, legal assistance is procurable to overturn the unanimous customs and usages of trade, which in all cases overrules law. However, possibly this may tend to much and effective good in advising builders, and all who are connected therewith, in future where works are to be executed by the perch, to insert the word "Irish" before perch in their agreements; and further we suggest a condition that no measurements should be made except by a surveyor mutually appointed, as, although cases like the foregoing are happily "few and far between," no builder knows but that his own turn may come next.

CROZIER TESTIMONIAL, BANBRIDGE.

THE design of Mr. W. J. Barre, of Belfast, architect, for the pedestal on which is to stand, in the town of Banbridge, the colossal statue of the late Captain Crozier, R.N., by Mr. Joseph R. Kirk, sculptor, has been selected as the best out of about fifty submitted in competition to the committee, and the following are particulars thereof:—The pedestal is designed after the English manner of the thirteenth century, and consists of a subplinth, base, shaft, and cornice. The subplinth is 14 feet square, and 2 feet high, splayed about 6 inches. On the centre of the north side is carved, in mediæval characters, the name Crozier. Upon the subplinth stands the base of the superstructure, with the bases of the buttress piers radiating from the angles diagonally. Immediately from the base rises the die of the pedestal, which is here brachied into octagonal form on plan, and is surrounded at four angles by flying buttresses rising out of the diagonal piers before named. Upon the arches and the part of the buttresses from which pinnacles usually rise (here cut horizontally) are

placed four polar bears, carved, life size, and each intended to stand in a different *posé*. The shaft, which is octagonal, rises from the die to a height of 9 feet, and is surrounded by eight pillars placed at its angles, each with moulded base and capital carved in emblematical foliage. Above these pillars are eight arched and foiled opees, with carved rope angles and bosses supporting the cornice, which will have carved monograms, anchors, heads of polar dogs and bears, and other emblematical illustrations of incident in Arctic voyages. Over the cornice is a weathered broach diminishing to an octagonal platform, 8 feet 9 inches in diameter, upon which is to stand the statue. The entire height of the pedestal is 17 feet, the height of the statue 7 feet 6 inches. The material will be, for subplinth, Armagh limestone; columns round shaft, polished red granite, and the remainder of Glasgow sandstone.

TRADES' SOCIETIES.

THE REGULAR OPERATIVE BAKERS.

THE universally acknowledged and important fact that "bread is the staff of life," suggests a more extended consideration of those engaged in its manufacture, than a mere notice of some features connected with its house of meeting, as in our periodical chronicles of new works we were requested to give; and we, therefore, jot down the following few particulars of the history of the trade in this city, and the nature of its pursuits. It appears that "The Regular Operative Bakers' Society" is about one hundred and ten years old, having been established in the year 1752, and is at once a provident, a guarantee, and a tontine institution, its immediate objects being to provide, out of the general funds, a weekly allowance to such of its members as by age or illness respectively are incapacitated from earning a livelihood, to secure employment for the unemployed, at the same time guaranteeing their fidelity, to inter becomingly the deceased and assist their widows and orphans. Here are associated many philanthropic purposes which cannot be too highly lauded, but in addition we find amongst the constitutional elements of this body another important feature of great moral and social influence. It is the general and much to be regretted custom—though there are a few honourable exceptions—that trade societies hold their meetings in public-houses or contiguous thereto, for what reason may easily be conjectured, but "the regular operative bakers" with more exalted aspirations than many of their fellow citizens—and we hope to see their worthy example speedily followed—have secured an independent establishment for themselves, comprising a general hall, a committee-room, and a recreation-room, in which latter the members are permitted to engage in reasonable amusements while indulging in the innocent luxury of "the weed," or to discuss the current topics of the day. The society's house is situated in Upper Bridge-street, and is a noticeable object to a passer-by, owing to an attractive escutcheon recently placed in the central pier between the first floor windows, and well executed in Portland cement by Messrs. Hogan and Sons of Great Brunswick-street. On this are developed the trade arms, which consist of a shield with three sheaves of wheat, emblematic of plenty, the scales of justice, and the two anchors representing the commercial interests being carved thereon. At either side are two bucks' rampant, and at top of shield is a cushion out of which rise two banded arms supporting a wreath of wheat. Sprigs of shamrock are introduced at the elbows of the latter, and appropriately fill the vacant spaces. A ribbon with the motto, "Praise God for all" is placed that each of the bucks has one of his forelegs on it. An attractive banner with nearly similar device on one side, and another on the reverse, is displayed in the committee-room, which we may remark is creditably furnished with large table and several chairs; a raised platform with arm-chair and canopy over, being provided at one end for the president. It seems to be the wish of the members to effect an extension of the premises by producing the first floor back room over the yard at rear, an addition quite practicable. In this, as well as in all the other laudable objects of the society, it has our best wishes, and we purpose paying an early visit to kindred institutions of which we hope to be able to furnish a favourable report likewise. The prosperous position of the Regular Operative Bakers' Society is mainly owing to the judgment of its excellent president, Mr. M'Donnell, and the energy and efficiency of its secretary, Mr. M'Namee.

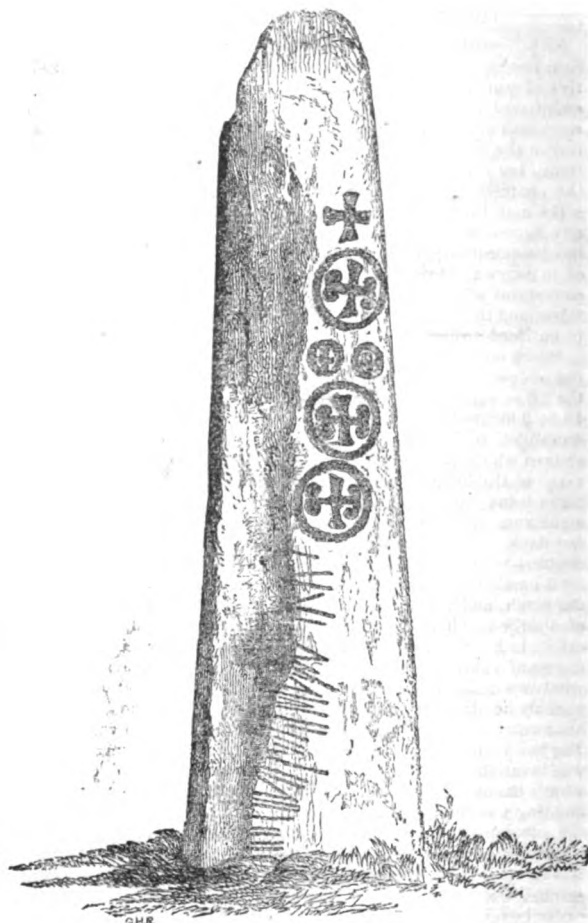
The restorations of Bristol Cathedral are progressing. Internally the work is complete from the eastern end to the tower, with the Berkeley Chapel; a new screen has been set up, and the organ enlarged.

It is by authority publicly contradicted that her Majesty will open in person the approaching decennial exhibition, the post of honour being, it is thought, allotted to the Prince of Wales, as the first public act of his Royal Highness.

* Not of the same model as those referred to by Alderman Reynolds at the inauguration of the Lord Mayor.



(FRONT VIEW.)



(BACK VIEW.)

ANCIENT MONOLITH AT KILNOSAGGART.

We give two views of this most remarkable relic of Irish antiquity, which the Rev. G. W. Reade (in the course of a paper on the subject read before the Kilkenny Archaeological Society) states that he believes it to have been primarily a pagan pillar-stone, marking the place of idolatrous rites and sacrifices, as also of a Druidical burial-ground. It bore originally a long inscription in Ogham upon one side, and also upon one of its sides either a dedication to the Druidical deity, or the record of the deeds of some hero, or, perhaps, the charter of some pagan privileges annexed to the spot. Subse-

quently, however, the Ogham was obliterated, and that shown on the front view substituted. This is thus translated into Latin by the late Dr. O'Donovan—*τὸν locum hunc conse cravet Ternocus filius cerani sit sub patrocínio Petri Apostoli*. The symbol of Christianity is visible in many places on both front and back views. In the latter, the Ogham is seen running down the centre of the stone, which appears to have been bevelled to the side. The stone stands at the northern edge of a very peculiar cemetery, circular on plan, and 55 feet in diameter, and at its foot is a round, slightly-disked stone not unlike, but smaller than those found in New Grange.

TO OUR BRETHREN OF THE PRESS.

So much kind feeling has been displayed towards our mission by the conductors of several of our contemporaries, many of whom have voluntarily inserted editorial notices thereof, and freely quoted from our pages, that we should be wanting in courtesy were we not to seize the earliest opportunity of specially acknowledging same. It would partake of egotism were we to reproduce in this journal the complimentary terms so used,—however much for obvious reasons we might desire to afford them every publicity,—so we beg simply to tender our thanks to the journals under named, without, be it remembered, intending the slightest disparagement to the many others to whom we may likewise be unknowingly indebted for similar favours:—*The Freeman's Journal, Saunders' News-letter, Irish Times, Daily Express, Morning and Evening News, Evening Mail, Evening Packet, General Advertiser, Advertising Gazette, Building News (London), Cork Examiner, Galway Vindicator, Derry Journal, Roscommon Messenger, Northern Whig (Belfast), &c.*

P.S.—We may perhaps (to save mistakes which frequently occur) here again appropriately remind the above and all others, that our title is the **DUBLIN BUILDER**, and not the *Builder*, which is a London publication, separate and distinct.

MEMORIALS OF PRINCE ALBERT.

Will Dublin be behind-hand in erecting a memorial tribute to the deceased Prince Consort, whose virtues and attainments the Irish people so universally admired, is a question we must specially ask, when viewing the forward movements elsewhere in that regard? London, of course—Manchester, Coventry, and other important English towns speedily following the example—has assumed the initiative. Is it reasonable, therefore, that we should be wanting in substantially realising our professions and resolutions implying condolence with her Majesty? Would not the area at rear of Royal Dublin Society House, between its Museum and the National Gallery, which, under any circumstances, will most probably be decorated with statuary, form a fitting site for the purpose?

THE PROPOSED COLLEGE OF PHYSICIANS.

TENDERS have been received in limited competition for the erection of this building, the quantities being furnished by Mr. William Doolin, and Mr. Beardwood's was found to be the lowest. We are apprised that with one exception there was a very trifling difference between the amounts, all approximating to £6,000. It would conduce much to the satisfaction of the parties concerned, and to the public generally, if a statement of the amounts were sent to this journal for publication.

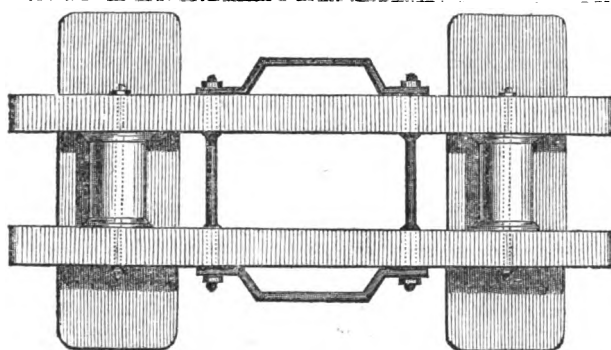


Fig. 1.

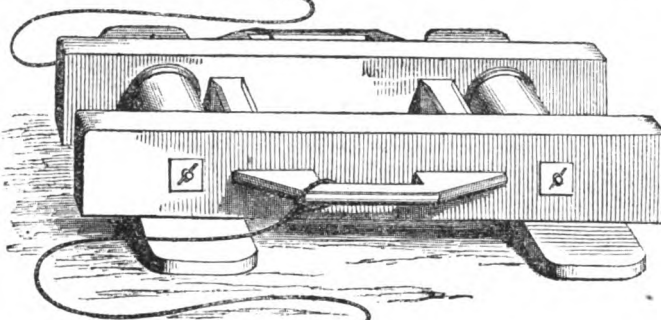


Fig. 2.

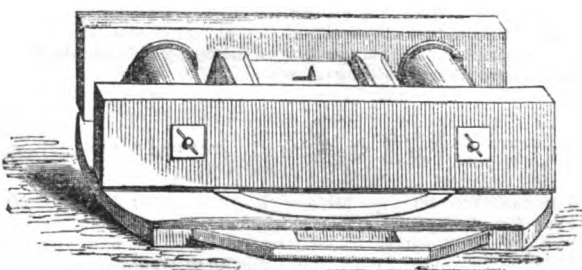


Fig. 3.

IMPROVEMENT OF GRAFTON-STREET.

We are much pleased to see that the hand of the modern renovator is gradually causing to pale beneath its influence many of the ill-fashioned structures which have hitherto been the very questionable architectural characteristics of this most important thoroughfare. None more than ourselves entertain a high regard for the preservation of such antiquities as serve to perpetuate the memory of hallowed associations, but it would be indulging in the consideration with a vengeance were we to regard otherwise than with pleasure the demolition of those brick and mortar excrescences that have met, and in a few solitary instances still meet the eye of the passer up and down Grafton-street. Of late years very much improvement has been effected, and we congratulate the citizens upon it, although that congratulation is accompanied with a regret that the narrowness of the roadway must always present a serious impediment to the public traffic. Indeed, at times this defect is palpably illustrated by the total blocking up of the street by vehicles, which, we must remark, has been somewhat lessened by the very judicious arrangement adopted by Messrs. Switzer and Co., and Brown, Thomas, and Co. respectively, by partially diverting the stream of visitors to their establishments into side entrances in Wicklow and Duke-streets, an example we have before suggested as desirable to be followed by Messrs. Cannock, White, and Co., in Henry-street. The commercial mart of Messrs. Switzer is a recently erected substitute (from a design by Mr. R. Carroll) for a block of tottering houses formerly on the site, and is a very fair—though not as elaborate as others—specimen of street architecture. We now observe in course of completion, on the opposite side, and about midway between Duke-street and Little Grafton-street, a large building with

ROLLER SKIDS.

THERE are doubtless few persons that reside on, or have visited, our coasts who have not frequently watched with interest the picturesque groups of fishermen and other boatmen hauling up their boats, and observed the contrivances by which that often laborious operation is made more easy of accomplishment—varying according to the size of the boat, the character of the beach, or mere local custom.

As the hauling up of a heavy boat is a laborious work, which men who have been many hours, perhaps all night, in their boats, would be very glad to dispense with—and since, as implied above, their mode of performing it is sometimes rather the result of custom than of scientific appliance—we think that we may usefully circulate, for the information of those to whom they are at present unknown, drawings of the “roller skids” used by the Norfolk and Suffolk boatmen in hauling up their larger boats, and which have been adopted by the NATIONAL LIFE-BOAT INSTITUTION, and found valuable auxiliaries in saving much labour, trouble, and expense.

There are three varieties of these skids used by the life-boats of the Institution—one is the simple wooden frame with either two or three rollers in it (Fig. 1), which is sufficient on hard ground, moveable short boards being placed under it transversely where the beach is soft. A second (Fig. 2) is similar, but having its sleepers attached to it beneath the rollers, which form is more convenient for placing under a boat whilst she is still in the water. Much labour is saved by hauling a heavy boat on the rollers whilst she is still partly water-borne, and it is awkward to place a detached board under a skid in the water, especially when the boat has much motion from the surf. A skid of this description can, by two short lines attached to it, as shown in the figure, be readily hauled under the stem or sternpost of a boat by two men or lads, one dragging by each line. These lines should be of Manilla rope, which will float, and thus indicate the position of the skid when under water. Two-inch rope will be found a convenient size.

A third variety (Fig. 3) is a shorter skid, similar to the above, fitted to turn on a pivot bolt fixed in a flat piece of wood, thus forming a portable turn-table, on which a boat, when hauled over it, can be turned round with very small power in any direction. The life-boats of the Institution are supplied with one of these turn-tables, with two of the second variety, or water-skids, for use in the water, and with two of the plain skids with detached sleepers. A less number would, however, be sufficient for ordinary use, unless for very large and heavy boats; and we strongly recommend them to the attention of the boatmen on those parts of the coast where they are not already employed.

ornamental façade of Italian character, also for commercial purposes. This, we understand, has been designed by Mr. Caldbeck, architect, and is being carried out by Mr. Meade, builder. The clergymen of Clarendon-street Chapel, long desirous of obtaining an entrance to their house of worship from Grafton-street, have at length succeeded, and are likewise erecting two houses therein, under the directions of Mr. John Bourke, architect, Mr. Donnelly being the builder. Nearer the centre of the city, and immediately opposite the Provost's beautiful house—which by the way is most shamefully hidden from public view—we notice that Mr. Pigott, the extensive music and pianoforte wares proprietor, has just completed some extensive alterations, embracing a new shop-front, in the Elizabethan style, highly decorative, and, we think, with some claims to merit for general effect. The carving, which was executed by Mr. Z. Jaques, of Abbey-street, is very creditable. The metal castings, procured at the Seville Works, are good specimens of Irish workmanship; and the painting and decorative work, by Mr. Rounds, are about the best we have ever seen. The whole has been carried out from the designs and under the superintendence of Mr. George Moyers, of Harcourt-street, architect.

THE SUPERINTENDENTS OF ENGLISH BUILDINGS IN THE MIDDLE AGES.

WITH reference to the paper on this subject which appeared in our last impression, we are asked by the author, Mr. Wyatt Papworth, to mention that, owing to a typographical error, he was made to state “that the term freemason was used in Scotland” at the period referred to, whereas the words “was not used,” would have truly conveyed the author's meaning. Mr. Papworth adds, “I was also obliged to remark, that I regretted I had not found anything of importance to notice respecting the master mason of Ireland.”

DIRECTORSHIP OF THE IRISH NATIONAL GALLERY.

THE building on Leinster lawn, intended for the Irish National Gallery and Dargan Institution, is so far progressing towards completion as to justify an early consideration on the important question of who is to be the director? Doubtless the office is one which will, and very properly ought, to be coveted by many, and for many reasons apart from the pecuniary interest attached, as a vast weight of personal and social influence will be acquired by the fortunate possessor of the appointment thereto. Like most instances, however, wherein grave considerations are involved, it is just possible that pressure of undue influence on the nominees may cause an injudicious selection; and should it result so, we must regard it as a national misfortune and injustice. With reference to the building itself, there has been so much cobbling and red tapeism that our apprehensions of the likelihood of the official appointment partaking of the same elements are not unreasonable, and are aggravated to an extent above that which is generally the case, even under ordinary circumstances. The desire of Government in many cases, where patronage is at its command, to ignore the rights of those best entitled to receive a fair share thereof, has been very strikingly illustrated in regard to the International Exhibition of 1862, now erecting from the designs of "an Engineer Officer" at South Kensington; and our readers are aware that the same "Engineer Officer's" name is associated with the completion of our National Gallery, commenced under the auspices of another engineer holding an important public appointment. Might not the question of the directorship likewise be resolved into an "engineering" one? and might we not, on same principle, at some time not far distant, expect to see the title of R. E. or C. E. appended to the name of the presiding official in that establishment, wherein will be collected our national art treasures? That the appointment in question can only be suitably filled by a gentleman combining the qualities of a thorough artist, aesthetically and practically, with polished and courteous demeanour, and somewhat more than ordinary business capacity, no sensible person will be found to dispute; yet we are not quite sure that all these requisites will not be overlooked, and the matter resolve itself into the mere consideration of competing to place a favourite in a snug sinecure, with any, or little, regard to his qualifications. It may be that the nominees will consider, or feign to, that the artistic sphere in our part of the kingdom is too limited to produce the "model man" qualified to hold this post, and with that due consideration which Irish appointments always receive (?) from public departments, will seek in and import from the more extended circle of the English metropolis, one whose superior capabilities to discharge its onerous functions will conduce most to the public interest. But to this we must emphatically take exception. The country that has produced some of the brightest luminaries in the artistic hemisphere, both in former and in present times—we need not name them—their fame is universal—has the undoubted right to behold one of her own sons presiding over the national art interests; and under any pretext whatever the directorship of the Irish National Gallery should be conferred on an *Irishman* only. Our friends at other side of George's Channel have quite enough of "pickings" to satisfy a combination of the most ravenous appetites (and we wish them joy of them, as far as their rightful portion is concerned)—the lion's share, forsooth; but those connected with a "national institution" elsewhere must not fall a prey to the greediness of neighbours, but be distributed generously at their own hearths.

Hereafter, when the proper time arrives, and when the candidates' claims are fairly submitted to the public, we shall revert to the subject.

WHOLESOME VERSUS UNWHOLESOME WATER.

A CIRCULAR of the Silicated Carbon Filter Company, advocating the advantages of their vessels for the purification of water, has the following:—"Physiologists inform us that more than 75 per cent. of the human body consists of water. Water, then, is one of the most important necessities of life, and as such, only wholesome water should be drunk. It is well known that the ordinary service waters supplied to towns by water companies, undergo a kind of filtration at the companies' reservoirs, yet the process is such as removes some of the mechanical impurities only; it does not remove the impurities or foreign matters which are held in solution. The water, too, is laid on only for a short time daily to the cistern of each house, where it soon loses any freshness it might have possessed, as well as becomes tainted by exposure to the action of an impure atmosphere. In this condition, combined with the dust and other impurities which accumulate, and the difficulty and neglect of cleansing out the cistern as frequently as it ought to be, rapid decomposition is induced, and the water rendered liable at any moment to become charged with the active agents of disease. In some stages of decay—and we have it on the highest medical authority—the smallest particle of putrescent matter is enough to poison the entire system, and to induce in the human frame a state from which recovery is impossible. An additional source of danger lies in the too general custom of using lead cisterns for storing water, as such cistern water is always tainted

with lead, not in quantity, it may be, to produce the distinguishing symptoms of lead poisoning, but enough to affect very injuriously the stomach and nervous system of persons habitually using it. That cases of lead poisoning, on the small scale, are constantly occurring in all our large towns, is firmly believed by chemists. The medical man is often extremely puzzled to account for certain anomalous symptoms in his patients, until at last he bethinks himself of the assistance of the chemist, and forthwith lead is discovered in the water used.

With regard to the pump or shallow well waters in towns, it will be sufficient to observe the opinions given of them by the following eminent medical men. Dr. Simon, the Medical Officer of the General Board of Health, says—"Pumps supplying such waters can never be otherwise than dangerous sources of supply." Dr. Letheby, Medical Officer of Health of the City of London, says—"The man who habitually makes use of London pump water is living in perpetual danger of disease." And Dr. Lankester, Medical Officer of Health, St. James's, says—"The large amount of mortality from cholera in this parish, in 1854, arose from using the Broad-street pump, persons dying of cholera whenever the water was drunk."

Of rain water it may be briefly remarked, that the foreign contents vary according to the state of the air through which it falls. The heterogeneous atmosphere of towns largely impregnates rain as it passes through, and renders it liable to spontaneous changes—hence, when kept, this water soon acquires a strong smell, becomes full of animalcula, and more or less putrid. In this condition its internal use is most unwholesome, and attended with considerable danger.

It is thus apparent that to render the water which is commonly procured in towns wholesome and fit for drinking purposes, its further purification is necessary. It is an admitted fact that the ordinary water filters usually sold to the public, and which, for the most part, act merely as mechanical strainers, are by no means calculated to meet this requirement. Fortunately, however, this serious evil may now be remedied by the use of the Company's Patent Filters, which have been pronounced by eminent medical authorities as well as by the first chemists of the day, to be a perfect safeguard against the insidious introduction of health-destroying ingredients into our drink. Besides their chemical purifying powers, the Silicated Carbon Filters possess the peculiar property of materially reducing the hardness of hard water, rendering it much more effective in extracting the aroma of tea, when used for that purpose.

KILKENNY AND SOUTH-EAST OF IRELAND ARCHÆOLOGICAL SOCIETY.

THE annual meeting was held on the 18th ult., at Kilkenny, Mr. Peter Burtchaell, C.E., in the chair. After some new members were proposed, the Secretary read the report of the committee for year 1862, which, amongst other things, alluded to "a generally healthy state of the exchequer," but urged a prompt liquidation of the subscriptions for current year to be absolutely necessary, "to enable the society to carry out the objects of its formation." The document in question then proceeded to state that "during the past year thirty-seven names had been proposed for election; in the same time the deduction of deaths, resignations, and losses amounting to twenty-nine. The total number of names now on the list amounts to 616, showing an increase of eight during the past twelve months.

"The third volume of the new series of the *Journal* is being completed—thus with the first series forming an aggregate of six volumes which have already taken their place on booksellers' catalogues at a price considerably above that at which they were issued to the members. There could be no more conclusive recognition of the value of their contents.

"The *Journal* has become a quarterly publication, to the general satisfaction of the members; and the formation of an Illustration Fund will tell favourably on the future issue of the *Journal*. It is hoped that this fund will be further enlarged when members are sending in their subscriptions for the year now commencing. The plan has been found to work with good effect in most, if not all, the English Archæological Societies, and is evidently considered, by a majority of the members, preferable to a general compulsory increase of the annual subscription—an alternative that has been proposed by some sincere friends of this society.

"With regard to the proposition that the Museum and Library should be placed on an independent footing by special local subscriptions, nothing has been done; but at some more favourable time your committee hope that this most desirable object may be carried out."

Graceful references having been made to the recent deaths of H. R. H. the Prince Consort and Dr. O'Donovan respectively, the report concluded:—

"An effort is now being made by an influential committee formed in Dublin to secure Dr. O'Donovan's MSS. for the nation, by purchasing them for the Library of the Royal Irish Academy; and as some mark of the sense of the loss sustained by this society in particular should be placed on record, it is suggested that no more fitting

means to effect this could be devised than a contribution to the fund proposed to be raised for this laudable purpose; especially when it is remembered that O'Donovan's rare and noble self-devotion to the literature of his beloved native land has left to his widow and orphans no other possessions than the invaluable products of his untiring pen and well-stored brain."

After some other business the meeting proceeded to consider a letter from John Blackett, Esq., in reply to a communication from the Rev. James Graves, respecting the preservation of the old monuments in Fiddown Church, shortly to be disused and dismantled. Mr. Blackett stated that there need be no apprehension of the ancient tombs, or any other interesting remains in connection with the old church being treated as "rubbish." Lord Bessborough had been speaking to him recently on the subject, and care would be taken that everything of the kind should be preserved. The chancel of the old church was not intended, as had been stated in the newspapers, to be used as a mausoleum for the Bessborough family, but as a "mortuary chapel," for the use of the parish at large, as the adjoining burying-ground would still be the only place of interment of the parish, as it was not intended to have a burying-ground attached to the new church. Mr. Blackett added that he would be happy to receive any suggestions from Mr. Graves on the subject.

Various presentations were then announced, and the usual vote of thanks having been passed to donors and exhibitors, the meeting was adjourned to the first Wednesday in April.

GEOLOGICAL SOCIETY.

A GENERAL meeting was held on the 8th inst., the Rev. Professor Haughton in the chair.

The secretary communicated an interesting notice by the Rev. R. V. Dixon, of an ancient paved road under deep bog, in the vicinity of Omagh, county of Tyrone; also, by himself, of a submarine bog of considerable extent, recently discovered in Wexford harbour. In the course of the discussion which followed, it was stated that submarine bogs exist at Clontarf, Dungarvan, on the coast of Donegal, and Antrim, and at other places.

The chairman read a letter from a gentleman who stated some facts which show that the sea is gradually receding from the coast of England at Hull, and advancing at the coast of Sussex.

The Secretary read a letter from Mr. Locke on the occurrence of flint imp'ements in the drift, which led Professor Jukes to make an interesting statement relative to the existence of gravel beds near the summit of hills in England and France. The other papers were by Mr. W. H. Baily, F.G.S., on the occurrence of some characteristic graptolites in the counties of Meath and Clare, indicating the equivalents of Llandovery flags; and on a new heca, from the lower silurian of the county of Clare, and by the Rev. John Storr on the gold fields of Nova Scotia.

THE CIVIL ENGINEERS' (LONDON) ADDRESS TO THE QUEEN.

THE following address of condolence to the Queen on the decease of her Majesty's Royal Consort has been forwarded to the Home Secretary for presentation:—

"To the Queen's Most Excellent Majesty.

"MAY IT PLEASE YOUR MAJESTY—We, the President and Council of the Institution of Civil Engineers, on behalf of ourselves and of the other members of our body, respectfully approach your Majesty with the assurance of our devoted attachment to your throne and person, and with the expression of our sincere condolence, on the occasion of the lamented death of your illustrious Consort. The interest which his Royal Highness always evinced in public works, and the appreciation of the results of practical science which he constantly manifested, have exercised a most beneficial influence on the promotion and encouragement of those objects for which the members of the Institution of Civil Engineers are incorporated by royal charter; and we gratefully acknowledge, among many proofs of concurrence in our pursuits, the readiness with which his Royal Highness became an honorary member of our Society in the year 1843. We deeply deplore the irreparable loss caused by this sad bereavement; and we fervently pray that your Majesty and your royal family may be sustained in their great affliction by the consciousness of the love, sympathy, and loyalty of all your subjects, and that your Majesty may long live to reign over a prosperous and a contented people. For the Institution of the Civil Engineers.

(Signed)

JOHN HAWKSHAW, President.

January 9, 1862.

THE ROUND TOWER OF LUSK.

At a meeting of the Royal Irish Academy on the evening of the 13th inst., the Rev. Dr. Reeves, Secretary, read an interesting paper on this antiquarian relic, which he described as the sole remaining portion of the ancient and important ecclesiastical establishment of Lusk, which was one of the earliest Christian establishments in

Ireland, the site of a flourishing colony long before the metropolis arose from the estuary of the Liffey. "Lusca" was an Irish name of the fifth declension, signifying "a house of earth," the reference being probably to the cells occupied by the earlier Christian inhabitants. Amongst various other particulars the paper stated that the monastic community was established at Lusk before the year 700, that it had had an abbot previous to that date, and that between that and the year 900 it had had twelve abbots. In the year 836, when the community was in its most flourishing condition, it possessed a bishop. The rev. gentleman concluded his valuable paper by stating that he had not obtained all the information requisite to enable him to complete the subject, and he would therefore ask the permission of the Academy to refer to it in a future paper.

THE PROPOSED SUBMARINE RAILWAY BETWEEN ENGLAND AND FRANCE.

In a recent No. we reviewed a work by Mr. Chambers, C.E. (Spon, Bucklersbury, London), illustrating a design for accomplishing a mode of sub-aqueous communication between Great Britain and the Continent, and in following up the scheme we find that the author has addressed the following circular to railway shareholders in England and France:—

"A few years ago, the great interests you now represent had no existence. The world's history would be searched in vain to find a parallel to the material progress of the past thirty years—a progress, towards which, railways have largely contributed. During this period, the once humble carrier has become the representative of a capital that equals the entire wealth his nation possessed a century ago—a power, second only to the great sovereignties of the world. These results are simply the fruit of enterprise directed into new channels, and the development of this immense wealth and power, with their concomitant advantages, is yet in its infancy; but the bold course that has hitherto characterized railway enterprise must not be departed from, if we would secure the full advantage of that prosperity which has distinguished the past.

"The chief hindrances to the expansion of our railway systems have been physical impediments occasioning breaks in lines. Some of these from time to time have been removed by expenditures greatly disproportioned to the subsequent traffic, and, consequently, have been burdensome and unprofitable to the companies concerned; but in cases where great works were necessary to connect important points, the advantages derived from their completion have always been such as would compare favourably with the expenditure. The gigantic efforts now making to connect the several lines terminating in London, show that the importance of uninterrupted communication is duly appreciated by the respective companies. The works now in progress for the accomplishment of this purpose are of such a nature that men stood appalled at the bare mention of the projects, until stern necessity demanded their adoption; and though some of these works may have been undertaken rather on account of the influence they will exert on millions already invested, than in anticipation of large direct returns, they will doubtless be self-sustaining, and may even be profitable investments before they are many years in operation.

"One of the greatest impediments to the full development of the English and Continental Railway systems is the break in the connection occasioned by the Channel. To this point I would respectfully direct your attention; not to discuss the magnitude of the obstruction, nor the practicability of surmounting it, but to remind you of the mighty interests affected by it, and of the results which its removal would have on hundreds of millions of railway property. It is universally admitted, that this property in England and France would be greatly improved by a Channel Railway which would connect the lines of the two countries, and it is generally admitted that such a work is perfectly practicable, though there is some difference of opinion as to the best method of accomplishing it; but whatever diversity of opinion may exist on this and other points, there seems to be none regarding its commercial success, when completed; provided the cost does not materially exceed the generally received estimate. From an expenditure of £12,000,000, a nett revenue of £1,200,000 is anticipated, and the collateral advantages to existing railway companies and the public, are expected to equal in value the direct revenues of the undertaking itself; for, if only £300,000,000 of invested capital were to be improved say 5 per cent. by this outlay, such improvement would exceed by 25 per cent. the whole capital required; but the capital invested in English and French railways is nearer £600,000,000 than £300,000,000, and the improvement, at least in some lines, would be nearer 25 than 5 per cent.

"As to the fitness of the present time for prosecuting such an undertaking, a combination of favourable circumstances renders it eminently opportune. The relations of amity between England and France are all that could be desired. The recent treaty of commerce and the relaxation of the passport system, have already greatly increased the traffic between the two countries, which by greater facilities would be developed to an extent never anticipated even by the

most sanguine advocates of the recent changes. Money is abundant: for trade and commerce paralyzed by the troubles in America, instead of employing any surplus capital, fails to employ its wonted quantity: and the general character of foreign investments at the present time, is not such as to command to any great extent the confidence of capitalists: hence, a proposition that offers profitable employment for £12,000,000 could not fail to receive due consideration, especially when the outlay, as in the present case, would greatly enhance the value of hundreds of millions already invested.

"As every English and French railway stockholder would be more or less benefited by the completion of a permanent Channel Railway, I respectfully commend the subject to the attention of the respective companies at their forthcoming annual meetings, and suggest that a committee composed of gentlemen connected with the principal lines of both countries be requested to enquire into the matter, with a view to profit by the many favourable circumstances which the present time offers for introducing and completing so important an undertaking."

NEWS ITEMS.

It is in contemplation to apply to Parliament for sanction to construct a new line of railway from Waterford to Passage.

The Dundalk Town Commissioners offer much opposition to a proposed extension of the Dundalk, Enniskillen, and Londonderry Railway, which they allege will greatly interfere not only with the traffic accommodation to the quays, but the traffic generally.

Mr. Macleise's large mural picture of the "Meeting of Wellington and Blucher on the field of Waterloo," upon which he has been almost exclusively engaged for the last two years, is completed, and fixed in the place for which it was designed in the House of Lords. It is a noble work.

Messrs. Harriott and Atkinson of Sheffield, have introduced a patented novelty of steel shirt collars and wristbands, which the *Ironmonger* says, "in an economical point of view are of extreme value, each collar costing about double the price of a linen one, and would obviously out-wear several dozen, and save ten times their price in washing."

A novel street tramway has been introduced near Newcastle; it consists of blocks of cast iron about eighteen inches square and four inches thick, the surface being chequered with small oblong pieces, constructed so as to give horses good footing, but not causing the slightest obstruction to the wheels of vehicles; the blocks are laid upon a substratum of compost, and will be on a level with the other portion of the road. A similar tramway has been laid down for a very short distance in the Blackfriars-road, London.

It is now determined to place in the arcades on the south front of the International Exhibition Building, decorations on a large and effective scale of the nature of mosaics, and representing the peculiar characteristics of the main avocations of the people in commerce, manufactures, trade and labour.

The suggestion some time since thrown out in the *Dublin Builder* as to the construction of railway engines for through journeys, so that stopping might not be necessary, has been partially adopted with success on the London and North Western line, where an express engine lately travelled from Holyhead to Stafford without stopping at Chester—as was usual before—to take in water. There need be no stoppage between Holyhead and London for any purpose, if engines and carriages were properly constructed.

BELGRAVE-SQUARE, RATHMINKS.—This rising locality has been lately further improved by the elevation of five commodious and handsomely finished dwelling-houses for Mr. Henry Peat, on the south side of the square, and called Fife-terrace. They are fronted with red brick, and were, we understand, built by men employed by Mr. Peat, under the superintendence of a clerk of works. Mr. Geo. Moyers, of Harcourt-street, architect, supervising.

The house No. 28, Henry-street is about to be taken down and rebuilt; Mr. A. Jones, architect.

The premises recently destroyed by fire in Prince's-street are about being rebuilt by the proprietors, Messrs. Cannock, White, and Co.; Mr. Jones, architect.

Two houses are being rebuilt in Eustace-street for Mr. Pickering, solicitor. Mr. Caldbeck, architect; Mr. Meade, builder.

A new terminus is to be built for the Finn Valley Railway, and a premium of £20 is offered for the best plan. Designs to be sent in on or before 7th February.

TENDERS

For six shops and warehouses at corner of Strand-road and Sackville-street, Londonderry, for Messrs. James Corscaden and Co. Mr. Fitzgibbon Louch, architect, Sackville-street, Londonderry. Quantities by Mr. Fetherstone.

Alexander McIlwee	£4,740	0	0
Mathew McClelland	4,275	0	0
Denis Doherty	4,012	18	6
Hugh McGinley (accepted) ...	3,850	0	0

TESTIMONIALS AND MEMORIALS.

The Eglinton and Winton.—A committee meeting took place yesterday, Lord Naas in the chair. A donation of £25 from the Lord Lieutenant was announced. Mr. Woods Maunsell (Hon. Secretary), said "The result of the movement so far was most encouraging."

Richard Dowden (Rd.).—It is intended to erect a monumental brass in the theatre of the Cork Institution, the scene of the society's proceedings, and of Mr. Dowden's long and arduous labours. The brass may be seen at Mr. Harris's, Great George's st. in that city, at whose establishment it has been manufactured. It is in the mediæval style of ornament, with antique ecclesiastical letters, and illuminated border.

Wedgwood.—A colossal statue to the memory of Mr. Wedgwood, the inventor of the celebrated Wedgwood ware, has been cast at the Grove Foundry, Great Guildford-street, Southwark. The statue is of bronze, of the value of three thousand pounds, and is to be erected at Stoke-upon-Trent, Staffordshire.

Alderman Fitzgerald (Limerick).—"Tenders" for a portrait of the late Alderman and Ex-Mayor are invited by the committee. Cost not to exceed £200! How will artists relish this proceeding?

The Herbert.—The statue which is to be of bronze and 8 feet in height, will be placed on a pedestal of polished Aberdeen granite in front of the Council-house, Salisbury. Baron Marochetti, sculptor.

The Stephenson.—Four of the statues are cast in bronze, and the fifth will shortly be out of the mould. The whole monument will be of that lasting character which alone is worthy of George Stephenson, the town (Newcastle), and the sculptor. Arrangement has been made to execute the pedestal for the reception of the five colossal bronze statues, in the most durable manner. The stones therefore have been for some time past in course of selection from the quarry.

ARCHITECTURAL, &c., BOOKS.—Messrs. Spon, of Bucklersbury, London, the eminent architectural and engineering publishers, have just issued a new edition of their catalogue, which comprehends all the principal works available to the present time, and will be forwarded gratis on application.

ILLUSTRATED CATALOGUE OF INTERNATIONAL EXHIBITION.—The *Art Journal*, in a series commencing April 1st, will present a complete catalogue of the contents of the coming exhibition, each No. to contain 24 pages, and about 120 engravings.

TRADE PUBLICATIONS.—"The *Ironmonger*."—This monthly periodical, published in London, has reached its thirty-third number, and, as may be implied from the title, is mainly devoted to the interests of those engaged in the hardware and metal trades. Its contents for December, 1861, embrace articles on "fraudulent trade marks," "the lock trade," &c.; editorial intentions as to future operations, notes of novelties, reports from the manufacturing districts, miscellaneous matter, &c. It must necessarily prove most useful, and is being spiritedly conducted.

The Grocer.—The promoters of this weekly trade circular, first ushered into existence on the 4th inst., urge "that while the interests of many other branches of industry have long been watched over by journals of acknowledged excellence, this important trade is dependent for its information on the circulars issued by particular firms," and add, "that the *Grocer* aspires to become the recognised authority upon all matters relating to the trade, and no expense or trouble will be spared to achieve this result." So far, they have given earnest of their good faith, and have produced in every way a very creditable publication, which, no doubt, will grow with its growth and strengthen with its strength.

THE PANTOMIME AT THE QUEEN'S THEATRE.

MAKING due allowance for the many impediments which must be presented by the limited resources of a minor theatrical establishment in the production of scenic display, or peculiar excellence in any walk of the drama from "the sublime to the ridiculous," we must in candour, and with regret (as we have invariably awarded praise where it was merited), admit that the effort of a pantomime this year at the Queen's is as discreditable to the producers as it is an offence to the discrimination of the audience. The subject would have proved a happy one for the occasion were not the mode adopted of developing it a miserable failure. In every one of the departments—unless, indeed, the orchestral, wherein the performers do their best, and succeed fairly—the pantomime of "Little Red Riding Hood" brings to our memory the unenviable reminiscences of a Donnybrook display. The scenery is a specimen of dawning from first to last, the appointments shabby and dingy, the disguises preposterous, and the acting intended for comicality degenerating to meaningless bombast. In the harlequinade the clown, pantaloon, and harlequin are simple apologies, and the veriest scene-shifter might, without the difference being noticed, take the place of either. The clumbine is a less than indifferent dancer, but would have found a fair substitute in the harlequin, who is unjustly kept in the back ground. The panorama—apparently trumped up for the occasion out of obsolete scenery—is of less standard as a work of art than the putty productions of "Irish scenery" visible in petty brokers' shops throughout the city. Wishing the lessee well for the sake of his previous efforts, which have been frequently distinguished for enterprise and success, we would suggest, if he hopes to secure public patronage, to do better in the production of a pantomime next year, as the untimely doom of that under notice will assuredly prove to be the most prudent course for his finances.

The Dublin Builder.

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A HINT TO OUR ARTIZANS.

ARRIVING at another turning point in the progress of the age—as the great International Exhibition of 1862 may be fairly designated—and of the advantages of which the public who may be spared to the period of its development should avail themselves to the fullest extent, we must urge upon the consideration of the artizan class especially, whose means individually may present some impediments to that effect—a suggestion which may serve to obviate the difficulty. Most of the trades in this city have their societies and houses of meeting, wherein their respective interests are guarded by committees selected from among their most intelligent members, and these should *at once* institute a “general exhibition fund” composed of the contributions of such of the members as may *desire* and be *enabled* by circumstance to visit the Exhibition of 1862. The actual travelling expense can be readily ascertained on application to the energetic and enterprising excursion manager (Mr. Marcus) of the London and North Western Railway Company, whose address is at Crosby Hall, Chambers, Bishopsgate-street, London, E.C., and no doubt will vary according to the number of the excursionists in each case. A sum of about £3 per head would enable the party to spend a pleasant week, see the Exhibition well, and in fact all the lions of London—St. Paul’s, the Abbey, the Tunnel, the Sydenham Palace, &c. &c., enjoying good accommodation at the model lodging house in Bloomsbury or elsewhere, and a fair share of the “roast beef of old England” and other necessary edibles, providing however for a *very temperate use* of any potables stronger than water, for a breach of which observance very numerous inducements are present in London saloons especially. “The club system” worked admirably in the case of the Exhibition of 1851, and many “a young man from the country” was thereby afforded an opportunity of visiting London during that period, who, had he been left to his own individual resources, might never have succeeded in arriving at the Modern Babylon; and we trust that that precedent will serve as an additional stimulus to the artizans of Ireland, for adopting this suggestion, to the originality of which, however, it must be obvious that we lay no claim. We well remember what a scene Hyde Park presented in 1851, and the streams of visitors that literally poured into and from the Exhibition building; not the least notable feature being “the clubs” from the country, in their tastefully-wrought smock frocks and general neat attire, waiting their turn. We sincerely trust that there may be a goodly gathering of our well-conducted carpenters and joiners, masons, bricklayers, stone-cutters, plasterers, &c. &c., who, we apprehend, will not suffer by comparison in any one respect whatsoever with their English brethren. The improving lesson to be taught practically by such a visit cannot be over-estimated as to importance, and it should be borne in mind that many a head of those who now are afforded the opportunity of enjoying it will be laid low before in the next revolving decade the chance shall again be presented. The Irish artizans must not be indifferent to this fact, there is no time like the present; they will meet a hearty reception, we doubt not, so long as they deserve it, and *the sooner* the preparatory organization commences *the better*. In conclusion, we may observe, that as we happen to be personally very well acquainted with London, and the means that may be advantageously adopted by parties in humble circumstances to see it economically, we shall, with pleasure, render every assistance and information to such of those whose pursuits are allied to our own who may desire to form “a club” to see the Exhibition of 1862.

ART UNION OF IRELAND.—The fourth annual drawing is announced to take place in May next, and we hope to hear of a large accession of members prior thereto, that the incentives to art and the assistance to artists may be proportionate.

THE CUSACK MEMORIAL.—It has been decided to erect a handsome stained-glass window in St. Anne’s Parochial Church, in memory of the late Dr. Cusack.

PROFESSOR S. SMIRKE’S LECTURES ON ARCHITECTURE AT THE ROYAL ACADEMY.—LECTURE I.

THE first of a series of lectures on Architecture at the Royal Academy was delivered by Professor Smirke on Thursday evening, the 9th ult. We take the following therefrom:—

Early in the seventeenth century an Italian writer, Teofilo Gallacini, composed a treaty of some ingenuity and merit on the Errors of Architecture, and certainly he succeeded in bringing together a mass of architectural errors (horrors I might say), so shocking as to reflect no small discredit on the practitioners of his day. That day, it is true, was one of great darkness in his art. By an unfortunate accident it coincided with the date of the greatest activity, influence, and wealth of the followers of Ignatius Loyola, when churches and seminaries arose in great profusion over a large part of Christendom; hence that era was then and still remains distinguished from all preceding and succeeding times by the prevalence of, perhaps, the worst architecture that has yet been devised by human ingenuity. Not that the Jesuits’ style of architecture, as it has been called, may not be admitted to be sometimes picturesque and bold—so much so, indeed, as to be occasionally most theatrical in its effects; but so entirely were all the rules of composition, I should almost say of common sense, ignored and outraged—so entirely was the sober truthfulness of our art disregarded—that I feel satisfied that I am confining myself to strict truth when I say that to the society founded by Loyola our art owes, indirectly, more of its degradation and decay than to any other school or individual whatever. Of course, I do not impute personally to himself any influence over the style which the buildings I refer to tended to propagate: I only regard him as founder of a religious society, who became the unconscious instruments of establishing a vicious school of architecture at a very unfortunate epoch of architectural activity. The author to whom I have above adverted had the great merit of seeing more clearly than his contemporaries the faults of contemporary art, and he deserves to be recorded among our worthies for his boldness in contending against the monstrous errors and absurdities that had sprung up with a luxurious rankness and rapidity which are really remarkable.

The very commencement of the sixteenth century—namely, the age of Bramante, of Raffaello, of Perruzzi, and Giulio Romano—was, as I have on a former occasion shown, in many respects worthy of being regarded as the culminating period of modern architecture; and the end of that same century saw the art, if not at its lowest ebb, at all events in a state of deplorable impurity. It is an old remark that all evil is but the corruption of what is good; and it seems to be in the nature of a law that no sooner has a point of excellence been reached than a process of deterioration commences. Fortunately, there would be a co-existent law of social adjustment, for no sooner have we reached a state of hopeless and helpless imbecility, than a glimpse of better things appears to restore our hopes and to redress the balance. The course, in short, of most human affairs may be correctly represented in a diagram by a series of antinodal lines, persistent in their ever varying irregularity.

Such, at all events, appears to have been the course of our art. The great effort of the distinguished artist whom I have named appears to have been—first, to make themselves thoroughly acquainted with the principles which guided the architects of the great classic period, and then to devise such departures from the style of that period (still, however, adhering to the principles on which that style was founded) as would enable them to adapt their structures to the greatly altered habits, and to the new civilization of their own days.

There can be little difference of opinion among us as to the consummate genius and wonderful dexterity with which these modifications of the ancient manner were effected. Perhaps one of the most prominent modifications was the introduction of a regular fenestration, by which that essential feature, the window, was so treated as to render it a fertile source of beauty and interest. It is true evidences are abundant to prove that whatever may have been the case in still earlier times, windows, with their architraves and other somewhat ornamental adjuncts of like nature, were a recognised feature in Roman architecture; but I am aware of no ancient building having its various floors marked by uniform ranges of windows as decorated features, such as we find especially characterising the architecture of the Renaissance.

Another source of beauty, wholly unknown to classic art—namely, the balustrade—is also due to the originality and inventive genius of the quattro-centists; and it is curious to know the avidity with which artist learnt to avail themselves of this novel and ingenious mode of turning so prosaic and utilitarian an object as a parapet into an ornament of great æsthetic value.

The systematic superposition of several regular orders was another practice particularly affected in renascent architecture. It had, indeed, been suggested by the magnificent amphitheatres of the Romans, as well as by a rare instance or two of still earlier date, but was certainly not practised by that people generally, either in temples or in their domestic buildings. I have enumerated some of the most prominent characteristics of Italian art, which stamped it

with originality, and gave birth to a school as widely differing from the primitive, strictly classical school, as from the mediæval school, which is supplanted.

Such was architecture at the beginning of the sixteenth century in Italy, then the instructress of Europe in the fine arts, as well as in most other branches of intellectual culture.

I have on a former occasion dwelt at sufficient length on the phases of our art down to this period—a period which, again adopting the language of a kindred science, may be regarded as an antichlinal axis. A downward course here commences. It is an ungrateful task to record the weaknesses of men and the errors of genius; but perhaps it is a useful one. Perhaps there may be as much advantage derived from inquiring how and why art decayed, as in marking and admiring its growth and elevation. Such, at all events, is the task which I have this evening imposed on myself.

To inquire why art decayed after it had arrived at a point of great excellence is, perhaps, equivalent to inquiring why genius is erratic, why we are unstable in our judgment, and why human fancy is like the fabled bird of paradise, that exists only when on the wing.

Had the men who followed the bright period to which I have adverted been plodders on the highway of art, without soul or invention, and content to follow with painful exactness the footsteps of their predecessors, we might, perhaps, have seen an age of good imitators, and of a level platitude; a race of tame transmitters of the excellence of others, productive of a perpetual repetition of approved forms and established models.

But very far otherwise was the case. Art, in all its branches, throughout the sixteenth and even the seventeenth centuries, was in a state of excitement and activity. Vassari, writing in the middle of the sixteenth century, vaunted that such was the fecundity of art and facility of execution in his time, that six pictures could then be painted within the time occupied by the previous generation of painters on a single picture. The simple-minded historian of art seems to have been hardly aware that his vaunt implied rather reproach than praise; although it is true he has elsewhere amused his readers by the anecdote of an eminent painter who, at his easel, when called to his meal, replied that he would come directly, "for he had but one saint more to paint."

The growth of public wealth and the progress of civilisation brought into existence hosts of artists and of patrons of art. Popes and potentates vied with each other in the patronage of it, and even kings would condescend to bid against each other for the corporal possession and exclusive monopoly of some favourite practitioner.

The consequences of such excessive stimulus were obvious and inevitable. Prosperity begot reckless and careless extravagance, and extravagance led to a rapid deterioration.

The real laborious artists of the fifteenth century wrought, no doubt, slowly and painfully—urged onwards not so much by a thought of lucre or applause as by a deeply felt love of their art; whilst the flattering crowd of artists who filled the scene in later times were the spoilt children of fortune, painting, and carving and building with wonderful dexterity and readiness of execution, it is true, and with a wonderful facility of invention in devising new shapes, and fashions, and fantastical combinations, but without that earnest, ardent, painstaking, and simple severity of study which had conducted their forefathers to real excellence.

By way of illustrating the vast change that had taken place during the sixteenth century, let us compare the works of Bramante, who flourished at the beginning of that century, with those of Borromini, who was born at the end of it. I have on a former occasion dwelt on the peculiar merits of Bramante. His was a pure, honest architecture, perfectly free from affectation and conceits of any kind whatever. His style appears to me to be all the more captivating from the very absence of all *ad captandum* contrivances, and all the more effective from its manifest freedom from all seeking after effect.

If we turn from him to Borromini, we shall be shocked to see what devastation and corruption of taste had taken place during the one hundred intervening years.

The one sought to charm by his purely architectural feeling, aiming, for the most part, at those high qualities—order, symmetry, and rhythmic arrangements—which the great father of architecture, Vitruvius, had long before pointed to as the distinguishing character of good architecture; whilst the other set at defiance all order and moderation. The one never feared to draw a straight line, unless the requirements of his work seemed to render a curved or a broken line preferable for some special purpose; and surely a straight line seems to be, of all others, the line of architectural fitness, and therefore of beauty; whereas Borromini must evidently have abhorred such a line above all things. He it was who, of all men, contributed most to the introduction of that system of architectural design (if it can worthily lay claim to the dignity of a system) by which masonry lost its special character and its most appropriate forms. His façades curved inwards or bulged outwards on their plan, as if made not of hard stone, but of some yielding and plastic substance; and his pediments, totally forgetful of their primitive form, offered every variety of intricate convolution and distortion.

(To be continued.)

ON THE CONSERVATION OF ANCIENT ARCHITECTURAL MONUMENTS AND REMAINS.*

I ASSUME as my starting-point that every member of this Institute appreciates the immense value, to any country which possesses a history and a civilization, of the monuments and remains by which that history and civilisation are illustrated.

The value of such monuments of the past is greatly enhanced when they illustrate the rise and development of a special style of art: still more so, when that style of art is one of great and acknowledged merit, and yet more than all when it is one which has proved worthy of re-development.

Those among us whose taste and education have led them to a more especial appreciation of the art of the ancient world, will feel how strongly these remarks apply to the precious monuments and relics of Greece and Rome, and of the countries over which their arts and influence extended. These illustrate a history and a civilisation the most wonderful in its character; they illustrate also the development of a style of art, the merits of which no one has ever presumed to question, and which has been revived and re-developed in more recent ages; and, as a natural consequence, every relic of these arts, however fragmentary or obscure, is searched out, delineated, and, when possible, protected and preserved with an amount of zeal and assiduity proportioned to their importance, and which does honor to that modern civilisation which so keenly appreciates and rejoices in that of the past.

Let it be clearly understood that I am entering upon no controverted questions: I am instituting no comparison between the intrinsic merits of the two phases of art, nor asking any assent to more than the *fact* of their revival. On all such questions we may hold our individual opinions, and yet may all agree to what I wish to lay down as the groundwork of what I desire to say this evening, that our architectural monuments possess claims upon our care and conservation precisely parallel in their nature to that which we accord to those of classic antiquity, but with these two preponderating points in their favour—that they are our own monuments, and that we are the parties responsible for their conservation.

I would next bring under your consideration the melancholy fact that, though our country is studded with these relics of the past, they are every year being reduced in number, and that those which remain are constantly subjected to the danger of destruction or deterioration from many different causes, among the chief of which I may enumerate—

I. Natural decay and dilapidation, which are greatly enhanced by the destructive climate to which they are exposed, and still more by neglect.

II. Wilful destruction and ruthless mutilation, together with alterations suggested by the passing requirements of the day or by individual caprice.

III. The yet more destructive inroads of *over restoration*.

These three causes, or classes of causes, threaten, in a degree so imminent and so alarming, the existence, the integrity, and the authenticity of our ancient architectural remains, that I feel it to be high time that this Institute, together with all local architectural and antiquarian societies, should take it into their serious consideration, both severally and jointly, what measures can be adopted to arrest the evil before it be too late.

Our ancient architectural remains may, for the most part, be classified under the following heads:—

I. Mere antiquities, such as Stonehenge, the Cromlechs, and many of the remnants of Roman structures, though the latter often contain objects of art, as mosaics, pavements, &c.

II. Ruined buildings, whether ecclesiastical or secular, such as abbeys, castles, &c., &c.

III. Buildings still in use, as churches, houses, inhabited castles, &c.

IV. Fragmentary remains embodied in more modern buildings, such as those which usually exist within the precincts of cathedrals, and often in old houses and country mansions, to which class may be added a vast amount of interesting and valuable fragments, mainly of domestic architecture, and often, though of a simple and even rustic character, of great practical importance to the student of our old architecture, to be found among our country villages, and in the scattered houses of the farmers and the peasantry, as well as other miscellaneous remains.

On the first of these classes, that of a purely antiquarian character, I will not trouble you with any remarks, as I think that our antiquaries are sufficiently alive to their value, and exercise a wholesome vigilance in respect of them. It is not in general this class of ancient remains which is most in danger, though it behoves every one who has it in his power to do his very utmost for their preservation.

The second class, however—that of ruined structures—is one which demand much and careful consideration, and it is one towards which the salutary vigilance of our Institute and of kindred societies might, with great advantage, be directed.

* From a paper by G. G. Scott, Esq., before the Royal Institute of British Architects.

The very condition of a ruin, of necessity involves liability to rapidly increasing decay and the probability of speedy destruction; and it so happens that two great events in our history, the dissolution of monasteries in the sixteenth century and the dismantlement of castles in the seventeenth century, have reduced two important classes of architectural edifices to this hopeless condition.

As regards ruined castles, it fortunately happens that the massiveness of their construction enables them, in many instances, to offer a fair amount of resistance to the elements, and that the simplicity of their architecture causes them to lose less from mere decay than structures of a more decorative kind. Such is not, however, always the case, and I would most strongly impress upon those who have the charge of these stern historical relics, to guard them against the effects of time and mutilation, and upon antiquaries and antiquarian societies to make periodical examinations into their condition, and to advise their proprietors as to such timely works of reparation and sustentation as may arrest the hand of time without tampering with their antiquity; and if their natural guardians refuse the necessary protection, to raise funds by private subscription for the purpose.

When we come, however, to ecclesiastical ruins, the case becomes infinitely more pressing. Unlike the great works of defence just alluded to, these edifices were not erected with a view to resisting any but the ordinary causes of destruction to which buildings are subjected. Their structure is comparatively light, and in principle trusts for stability to the nice equipoise of arches and abutments, and pre-supposes the protection of a roof. It is, therefore, a matter for wonder that after more than three centuries of exposure, unroofed, and uncared-for, and though often used to supply materials for surrounding buildings, their ruined forms should in so many instances have reached our time in a condition which enables us in any degree to appreciate their merits or their design.

Happily, however, though great numbers of them have ceased to exist, very many precious remains are left to us, and these, instead of being like those of castles—stern and almost forbidding in their undecorated grandeur—are, for the most part, exquisite and highly finished architectural productions, equally valuable and equally beautiful with our glorious cathedrals; and in their own phase of art as classic and as perfect as the remains of antique art which we so much cherish.

Now, the two points to be considered are—1st, can we expect these precious fragments to endure much longer, and, if not, what can we do to promote and prolong the continuance of their preservation?

On the first question I fear that the reply cannot be very satisfactory. Those who have for any considerable course of years been in the habit of revisiting any particular ruin, can scarcely fail to have observed how sensibly and how surely the course of decay, disintegration, and downfall has progressed, even where there has been no deliberate mutilation.

The decay of the surfaces seems to have, of late years, redoubled its speed. I have revisited buildings, and particularly ruined buildings, where twenty years earlier I had been able to make minute sketches of delicate carved work, and found the carving now become unintelligible. In many of the best preserved ruins we find the surface of the mouldings and carvings covered with an ever-fresh pulverescence. If you visit a building in this exposed condition after a hard winter, you are sure to find fresh spots where the details have fallen off through the recent frost, and in every ruin there occur, from time to time, slips and downfalls of greater or less importance, showing that, long as they have resisted the assaults of time and weather, there are limits to their duration, and that those limits are by no means distant.

How many of our ruined buildings have lost large portions within the memory of man! The Abbey of St. Augustine at Canterbury has lost its greatest tower within no very distant period, and I myself remember the newspaper notice of the fall of the central tower of Whitby Abbey, carrying away with it large portions of the surrounding building—indeed, such downfalls, if their statistics could be collected, would be found to reach an alarming number and amount, while the silent and yet more fatal progress of decay is every day and every hour eating into the most beautiful and most precious architectural details.

And how could it be otherwise, when walls constructed of small stone and rubble work are exposed, with no protection but ivy and wall plants, to the constant action of the most destructive of climates; when every shower penetrates the crumbling mass, and every frost has its full swing in its disintegration, and even the more solid stone, from being kept in a constant state of saturation with water, has every cause of destruction in full and continued operation upon it—and all this for centuries together?

Nor have these been the sole agents of destruction. Many, indeed the great majority, of our noblest abbey churches, and even some cathedrals, have been taken down for the value of their materials, and those which were left as ruins were, for the most part, spared more because there was no market for their material than for any care for their preservation; and it naturally follows that they would

become the quarries which would supply all the petty buildings around them.

Perhaps the most remarkable case of this is at Reading, where the walls of the abbey have been stripped of their ashlar, both without and within, and the rubble core only left; yet such is its extraordinary strength that it still holds together in perfectly solid and compact masses; and where fragments of the tower long since fell they remain to this day, protruding from the ground at the same angle at which they first reached it, and look like masses of rock cropping out of the earth.

(To be continued.)

MONUMENTS OF ANCIENT TYPOGRAPHY.

In the course of a paper read recently before the London Society of Antiquaries by Mr. Tite, M.P., we find the following:—

The ages of our specimens of illuminated manuscripts at the former Exhibition extended over seven centuries; but the numerous volumes which are before you to-night hardly reach to 200 years, although the earliest of them belong to the heroic undated period of the history of typography. Without attempting to anticipate anything which any gentleman may be prepared to offer to this meeting in illustration of particular specimens, you will perhaps kindly allow me to commence our proceedings by addressing you with a few general remarks on these subjects, which may serve to point out more explicitly the principal features of interest in this collection; and these appear to me to be resolved into the four classes following:—

1. Block-books.
2. Early printed books.
3. Horæ—illustrated gothic hours.
4. Typographical curiosities.

In calling your attention to block-books, I am, of course, not about to instruct the Society of Antiquaries in the signification of the term; and still less do I intend to enter on the multitude of minute variations existing in the different extant copies of those books, which have been preserved by the elaborate investigations of Heineken and Papillon; Otley, Singer, and Dibdin; Berjeau and Sotheby. But in order not to pass over so interesting a portion of the history of printing without some illustration, I will request permission to say a few words on a point closely connected with them, which has frequently occupied my consideration, though it has been hitherto but little discussed. I refer to the very obscure nature of the block-books themselves to such as were unlearned, and of this I can give no better illustration than the most popular, and perhaps best known of those books, the "Biblia Pauperum."

The first edition of that work consists of forty folio engravings on wood, ingeniously composed of subjects and the effigies of personages taken from the Old and New Testaments, of which a series of fac-similes was published by M. J. P. Berjeau, in 1859. In his introduction to that volume, he says that "the 'Biblia Pauperum,' the Poor Man's Bible, is so-called because it was intended, by presenting a mere summary of some of the most important characteristics of both the Old and New Testaments, and by speaking with its figures to the eyes of the unlearned, to popularize the contents of a work so expensive by its bulk, that, before the invention of printing, the possession of a copy was only within the reach of a very small number of rich individual or monastic corporations."

This statement appears to me to be but a part of the truth only, as any one may be disposed to admit who will look at the very artificial arrangement of the prints in this curious book. It is to be observed, also, that the text which is interspersed would be as obscure as ever to the unlearned poor; and it is not exceedingly elucidatory to even such as can read it; but it requires either to be explained or carefully considered, so that all the interesting parallels and connexions in the several pictures may be rightly apprehended.

A copy of M. Berjeau's edition of this work is placed before you; and you will see that the engravings are uniformly divided into three horizontal lines, which are again separated into three compartments; a Gothic architectural frame-work inclosing the whole. In the centre above is the turret of the edifice, having two arches or windows, in which appear two half-length figures of prophets, with their names beneath them, and some appropriate passage taken from their prophecies inscribed on long scrolls below. In the vacant space at each side of the tower, is an inscription in very rude Gothic letters, full of difficult contractions, in which the subjects in the next division below are briefly expressed from the books of the Old Testament and the Gospels. The second stage of the building contains in the centre one great event taken from the life of Jesus Christ; having on the left a typical subject from the Old Testament, and on the right another taken from the Gospels; and beneath each of the latter are two explanatory lines of rhyming Latin verses. In the lowest stage of all the pictures

are two more arches like those above, with the figures of two other prophets, having their names, scrolls inscribed with their prophecies, and explanatory verses in rhyming Latin printed beneath them.

Although all these subjects and inscriptions are intimately dependent on, and illustrate, each other, I will now with great deference submit the inquiry, whether it be possible that the uneducated poor could derive much benefit from these pictures, without having the connexion of the several parts explained and the text read to them? But if we can have the charity to think it likely that, even before the Reformation, there might have been pious and zealous missionaries who travelled through the forest and remote districts, carrying with them these rude prints, discoursing on them to the peasants, and then occasionally leaving one to be stuck on a cottage wall. We can at once understand how naturally the name of "The Poor Man's Bible" originated, and how that by means of it "to the poor the Gospel was preached."

M. Berjeau observes, that although this book has been long known in Germany, France, and England, by its popular title, in the language peculiar to each nation, as well as by the Latin *Biblia Pauperum*,—that name has been frequently disputed by bibliographers, on the ground that the engravings really represent the historiated windows of the Convent of Hirschau, in Swabi. He appears to have shown that this is not probable as an historical fact; but it must be admitted that the compositions have in them very much of fenestral art, and might possibly have been really taken from the windows of some church or religious house, where the brethren were accustomed to explain the subjects painted on them to occasional visitors. All such historical windows may be made most interesting by explanation: as may be seen in the text to the "Vitreaux Peints de la Cathédrale de Bourges," a splendid publication illustrated by MM. Martin and Cahier; and even in the strange bizarre volume set forth by Thomas Gent in 1762, which he called "The most delectable, scriptural, and pious History of the famous and magnificent great eastern Window, according to beautiful Portraits, in St. Peter's Cathedral, York. Impressed by the Author in St. Peter's Gate."

But if the "*Biblia Pauperum*," with the contents of which, as generally derived from the Holy Scriptures, all might be supposed to be familiar, so much information is required,—what must be the extent of teaching wanted to enable even ordinary persons, before the middle of the fifteenth century, to understand and to profit by the pictures of two other celebrated block-books, called "*Ars Memorandi*" and "*Historia Virginis Mariæ ex Cantica Cantorum*?" The first of these was designed to convey, by the means of a large figure, typical of one of the Evangelists, accompanied by a number of pictorial emblems, a knowledge of the principal events recorded in his gospel. In the absence of the originals, let any one look, in proof of this argument, at the large *fac-similes* given by Mr. Sotheby and Dr. Dibdin's "*Bibliotheca Spenceriana*," or even at the greatly-improved reductions of all the four Evangelical effigies, which will be found in the "*Bibliographical Decameron*," vol. i. third day, pp. 132-135.

The volume of impressions from engraved blocks designed from the Canticles, consist of thirty-two subjects, in which the Spouse and the Church are considered as being visibly typified in the person of the Blessed Virgin. This spiritualising would require much careful instruction by part of the teachers of the common people, especially if Mr. Sotheby's explanation of it may be admitted, that it was "one of the earliest promulgated auxiliaries to the Reformation of the Church." I cannot leave this very remarkable volume without observing to you that, notwithstanding the grotesqueness of the designs, they are full of curious costume, architectural antiquities, and representations of manners. The female figures, also, are often delineated with wonderful grace and beauty, as may be seen in Mr. Sotheby's *fac-similes*, and in M. Berjeau's reproduction of the whole series of prints, published in 1860, both of which are placed before you.

All the block-books of this heroic age of printing were not, however, quite so obscure. The volume called "*Ars Moriendi*" at once addressed itself to all understandings, in the grotesque figures of a dying person in his bed, attacked by the remembrance of his former sins of follies, and present infirmities and temptations in the visible forms of hideous fiends,—counteracted by earthly comfort and spiritual assistance and hope, in the form of friends, ministers, and angels. Such thoughts would be readily understood by all, however rudely they might be expressed.

These volumes, as well as all the other block-books hitherto discovered, are most accurately described and excellently represented in numerous specimens in the late Mr. S. Leigh Sotheby's fine work on the subject, published in 1858, and already referred to. The first of them which is noticed is entitled "*Sancti Johannis Apocalypsis*," and it contains a series of forty-eight engraved pages, intended to represent pictorially the visions recorded in St. John's Book of the Revelations. I have placed before you, for

exhibition, a copy of this very curious work, in which the prints are coarsely though characteristically coloured.

I will not pursue the subject of block-books any further than to observe, that the specimens of them which are now extant, appear to be between twenty and thirty in number; exhibiting, however, very numerous editions, as shown by the many distinct variations in the re-engravings of the same subjects. This circumstance indicates their extreme popularity; and it seems also to prove that the prints were frequently dispersed separately: as the possession of the whole series would generally be out of the reach of the common people in Holland and Germany, however low might have been their original price.

All these volumes belong to the undated and most ancient part of the history of foreign printing, before the invention of movable types had led to the production of works more substantially valuable and useful. Those which were printed in the transition period were partly block-books, and some others are now accepted as having belonged to the very earliest volumes produced by separate types. These appear to have consisted of the works of grammatical instruction usually known by the name of Donatus, the tutor of St. Jerome, who compiled the grammar by which he was taught the Latin language.

The real history of the typographical art must be dated, as far as any probable period can be assigned to it, from the general use of the movable types; and the appearance of books produced in different cities, with a certain year, and the imprint of a certain place attached to them: for almost as soon as the wonderful invention was known to exist, all the principal European States became desirous of benefiting by it. The periods of undisputed dated specimens of books printed at these places, is under half a century: and perhaps it will not be inappropriate to this subject if I recite to you some of them, as they are recorded in Dr. Henry Cotton's excellent "*Typographical Gazetteer*, published in 1825:—

Mentz—1457.
Cologne—1466.
Rome—1467.
Oxford—1468.
Venice and Milan—1469.
Paris—1470.
Bologna, Florence, and Strasburg—1471.
Bruges and Brescia—1473.
Bruxelles and Westminster—1474.
Leyden—1476,
Antwerp and London—1480.
Leipzig—1481.
Hariaem and Magdeburg—1483.
Utrecht—1484.
Madrid—1490.

These notices bring us to the second division of this address, which comprises early printed books; but under that title I propose to confine myself to an account of such as were produced in this country, with a few observations on the introduction of the art of printing into England, as naturally leading us to William Caxton.

(To be continued.)

THE GIRTH HOUSE, ORKNEY.—Mr. Petrie communicated recently to the Archaeological Institute, London, drawings and some notes of the remains of the ancient building so designated, but which consists of a church of circular form near the ruins of the Palace of Jarl Paul. It is pronounced to be a unique specimen of that peculiar type of which so many are to be found in the northern parts of Europe, but one in Ireland.

NEW PLAN FOR FORMING HARBOURS OF REFUGE.—At a recent meeting of the Royal Scottish Society of Arts, Mr. Firth, Fellow, submitted a plan for the above purpose which he stated was one of the class known as floating breakwaters. It was founded on the well-known law, that "action and reaction are equal and opposite." The general feature of the plan was to break the waves by means of large pontoons or tubes of iron of great length and of considerable depth. It would be necessary to preserve the tubes from decay, and also from being drifted by high winds. The objection hitherto urged in respect of decay must in the present case be set aside, as, with the facilities now existing for effecting repairs, the same objection ought to apply to the Britannia bridge and similar structures exposed to the influence of the weather. The quantity of water raised above the mean level or still water-line was almost equal to the quantity left below that line, and it must equally follow that the undulatory motion of the water was confined between two lines, one as much below as the other was above still water-line. The final consideration was that of making anchorage, which had been considered the chief objection to floating breakwaters. If it were considered that the tubes had no pitching motion, and consequently would not jerk the cable and anchor, there was some difficulty in arriving at any need for prodigious power in this element of the plan.

ON ENTERING ARCHITECTURAL PRACTICE.*

(Continued from page 13.)

A BUSINESS legitimately and honourably got together goes on increasing and extending, unless some extraordinary misfortune or failure intervenes, or actual incompetence exists. One founded on success in repeated competitions, that success being based, not on superior merit and skill, but on underhand practices, will have a brilliant and dazzling appearance of success for a few years, and then will collapse, leaving the unfortunate man in solitude, disgrace, and desperation.

Still, compete. If you are to be the architects of your own fortunes, and are to build those costly and lasting structures in London, you will probably find the foundation as bad as actual builders find the treacherous London clay. Some cartloads of competition drawings, worked up with a fair proportion of miscellaneous disappointments, form the best concrete that I know of to improve this foundation; and, therefore, whenever a big roll of drawings comes back, prepaid or not prepaid, with or without the "thanks of the committee," while the columns of the local papers inform you, "that the design for the town-hall at Pogford Parva which had unanimously been pronounced to be the best, was the one with the motto, 'Fiat justitia ruat cælum,' and on opening the sealed envelope was found to be by Mr. Jabez Johnson, of Pogford Magna, architect, son to the present mayor of Pogford, and whose brother is the distinguished solicitor and town clerk," &c., &c., &c. Don't go into a passion, don't write to the newspapers about it, don't even feel unmitigated regret, but hang up the perspective as a bit of wall paper in your room, kick the other proceeds of a month's anxious toil into the corner with as light a heart as you can, and say, "Thank goodness, there goes another barrowful of concrete to the foundations of my fortune!"

Does all this sound very formidable? Well, perhaps it does; and, therefore, let me put what encouragements I can before you, and these are neither few nor light.

Perhaps the greatest comfort is that this is a battle in which, with ordinary powers, opportunities, and advantages, and with sufficient constancy of purpose, you may make sure of winning in the long run; while there is hardly a single personal advantage that you possess, whether of fortune or natural qualities, general education or professional skill, which you may not in some way bring into the field, and which will not in some way help you.

Then there is constantly the pleasure of overcoming difficulties, and the growth of self-reliance and self-respect; there is the feeling, too, that your struggles are fitting you for, as well as bringing you nearer to, the position you hope to attain; and, lastly, in each difficulty overcome you have a pledge of your future security, for that which is hardly won is not easily lost.

The delay while waiting for practice is the heaviest trial attendant upon entering professional life in all its branches; and here an architect has an immense advantage over every other profession that I know of, in being, as I have just observed, able to occupy himself during this delay in a way which directly tends to fill up his time and to improve his skill, while it presents at least a possibility of professional advantage.

Let me conclude what I have to say on the subject of seeking business, by recommending to you as your motto the old proverb, "Leave no stone unturned."

Possibly it will fix this proverb more strongly in your remembrance, and explain exactly the sense in which you are to make use of it, if I tell you its reputed origin.

It appears, then, as an accomplished naturalist has informed me, that the creature who has the honour of reading to young architects by his own habits the all important lesson that they must "leave no stone unturned" is none other than one of the tropical baboons. I believe the blue-nosed baboon. This creature's favorite relish is to eat a scorpion for dinner. Now the scorpion lives under flat stones, and leaves no trace behind him to show under which particular stone he is hid. So the baboon, in his scorpion hunting expeditions, systematically turns over every stone as he comes to it, not passing one by, lest perchance his desired repast should be hidden under that one. Be so good as apply this rule to your opportunities and your acquaintances. Neglect no opportunity that is no opportunity by possibility; leave no friend in ignorance of your being in practice who is possibly a friend, and you will certainly be rewarded by sooner or later meeting with a great success from a most unexpected quarter. Pursue an opposite course and you will be equally certain some day to pass by what might have turned out a good thing, perhaps, the best thing that ever was within your reach.

Let us now suppose that you have found what you want under some stone or other, and that some one offers you your first professional employment, and by degrees other things come in. So much of your future success will depend upon how you now acquit yourself, that I must be excused if I venture to follow you during the first few steps of your professional career.

In the very few topics which I shall select out of the many which under this division of my subject present themselves, I shall do as I did when considering student life, and shall omit all that relates to soundness of construction, excellence of design, and the method of studying and working out your buildings; not because these material and artistic considerations are of no importance—they are the most important of all—but because they are the very things which if you learn anything at all, your ordinary studies ought to teach you, and the things which are frequently and most properly pressed on your attention. What I am going to say refers now to matters which you might often omit to notice while a student, and which, yet, you ought to be somewhat aware of when you engage in business on your own account.

You ought early to take in the exact nature of your position, its responsibilities and risks, its honour and its duties; and with all this you should never lose sight of your own youth and inexperience, and of the comparatively slight hold which you most likely have at starting upon your clients' confidence.

Let me start, then, by recommending you never to do less than your very best; you cannot do more, but you cannot afford to do less; and this maxim made into a principle of action, both for your student life and your after life, is the only one which is a sure clue to that continual progress without which you cannot even hold your own.

Settle it in your own mind that through in skill, knowledge, and science you may stand high, your inexperience is your great obstacle and a source of great danger to you. This want of experience you must make up for by much additional labour, by watchfulness, by forethought, and by occasional recourse to the advice of friends.

It will be of infinite advantage to you through your practice if you cultivate the habit of constantly saying to yourself, "What next?"—that is to say, the habit of forethought; but when you first undertake to carry out a building, it becomes absolutely necessary, if you would not forfeit alike your client's confidence and your own chance of success.

Let me illustrate what I say by a simple instance. Probably you know all about making plans, and your competition experience has enabled you to understand well how to grasp the main idea and details of a subject and embody them in drawings, and you have got on very well thus far.

Suppose, now, you take the plans to the client one day and he asks you to go to the ground with him, and you find some men, some pegs, some cord, and some long bits of wood, and your client says—"I thought I should like to see how your building will occupy the ground, and so I got these men up, and all is ready if you will just stake out the principal walls; the men do not know much about such a job, but, of course, you do, and they will do as you tell them."

Now, suppose (and many a really well-informed young architectural pupil and assistant is so circumstanced), you had never seen a building set out, and had never given it a thought before, the chances are you would not, thus taken aback, hit intuitively upon a neat and rapid way of doing it, even if you got it done at all. Your client will see you are embarrassed, and that you are bungling, and will probably take an unfavorable impression which months may not efface, and which may be a most untrue one; whereas, had you just exercised forethought enough to inform yourself, before it was likely to be wanted, of the method of setting out, a quarter of an hour would have taught you all you needed, and your forethought would have been as good to you as experience.

It is just the same thing if, instead of your client it is your builder, and a difficulty is brought, requiring prompt solution, which you might have foreseen by care, but for which you are quite unprepared. You may unguardedly sanction some egregious blunder or some gigantic extra, for many builders' foremen will coolly propose one or the other, or a combination of both to you; and you may get your whole work spoiled through having no experience to exercise, and having failed to exercise that careful forethought which will be as valuable as experience.

Consider beforehand all points likely to turn up; try to foresee requirements; be prepared as to the tradesmen to recommend and the course to advise; and if you are only careful enough you may manage to think over nearly every point at your leisure, and, if necessary, talk it over with friends, before it actually turns up on the building, so as to have your mind made up when the time comes.

Let me recommend you great caution as to anything which may lead either yourself or your client into liabilities. This you will often do (if you are not wide awake) very unwittingly, for you are recognised as your client's legal agent, and you may easily make him liable for an expensive bill of quantities, or for any amount of extras, without his being aware; while, if he has a large sum of money to pay through incompetence, he has a legal remedy against you, and will very possibly proceed to make use of it.

* The substance of a paper read by Mr. T. R. Smith, at a meeting of the Architectural Association, December 6th, 1861.

Always, from first to last, and above all things, keep your client as fully and fairly informed as possible of all you are doing for him and in his affairs. You have no right to attempt to keep him in the dark, and above all things you have no right to attempt to do in his name what he would not sanction. Let me here add, for this reason as for several others, that you ought never to run the risk of misleading your client and ruining yourself by *guessing* at an amount of money for work. Never, under any pressure, name a probable sum, unless you have some pretty reliable grounds for believing you are correct, and then use every possible caution to prevent your estimate from being over-rated as to accuracy. Disregard of this rule will be safe to bring you into trouble; conformity to it will also give you trouble sometimes, but of a less serious kind.

All clients, as a rule, want more accommodation than they can have for their money, and consequently, as you cannot let them have all their wishes, an unpleasant alternative must at some period or other be placed before them; either they must pay more money or they must do with less in the building.

By all that is honourable and just let me implore you away to put this alternative before your employers at the earliest moment that you are yourself quite clear about it. Many men habitually wait until it has no longer become an alternative; they get a contract omitting certain works; they get authorization in that contract to order additions; they do order those additions as extras, and then they present their client with what he wanted indeed, but at a price he had never dreamed of paying. I do not think I need say much to characterize this not infrequent course of procedure, and I have only to add that because a client, so treated, may possibly be wise enough to make the best of a bad bargain and pay both the architect's bill and the builder's, it does not follow that he is not calling his professional adviser a scoundrel, whom he will never employ again, in his heart, and vowing that your whole profession is little better than a den of thieves.

(To be continued.)

THE ART OF DECORATIVE DESIGN.

FROM the second part of a comprehensive course of lectures delivered recently on this subject by Dr. Dresser at the Society for the Encouragement of the Fine Arts, we take the following illustration of his subject, the Lecturer said:—

I suppose that the object which we have in teaching writing in our schools is that of enabling mind to communicate with mind, and spirit with spirit, when the bodies in which they dwell are somewhat widely separated by space or time; the secondary advantages, resulting from an increase of power over the hand and a more careful mode of thought which writing induces, may also lead us to inflict this task of learning to make and arrange characters on paper upon our children; but the primary object is that of enabling them to pass their thoughts through space, and hand them down through time in order to instruct, gratify, or delight kindred spirits. But the power to write is only of value as it enables us to embody thought in form in such a manner that others may reap from the forms the conceptions of the mind which created them.

In itself the power is worthless, for no collection of indiscriminately arranged words, I conclude, would be of value; but as thought can be conveyed by this agency, the art cannot be overestimated.

The works of Shakespeare, Macaulay, and Bacon we greatly value, but they neither command our sympathies nor approbation because they are combinations of characters arranged in meritorious order according to rule, but through the excellence of the mind which they make known, for, while reading these works, we recognize the minds of the authors conversing with our minds as fully as if the very men were standing before us in person, and speaking in audible sounds.

It is so with drawing, for this is only a vehicle for thought—a means to an end; and I know not that the art is worth the expenditure of labor necessary to its possession, but for this one power which it has. Writing may be said to be a plain chariot in which thoughts are conveyed from individual to individual throughout a kingdom, and sometimes beyond; and decorative art, an ornamented car in which mind is conveyed throughout the world. One feature of especial interest as appertaining to drawing is this, that the language which it speaks is universal, and addresses itself alike to the inhabitants of every land. Then, however desirable it may be to possess the power of delineating objects for secondary purposes, the great value of such ability rests in the increased means afforded for the conveyance of thought. Seeing that we value the power of drawing merely as a means and not as an end, and recognising the truth already enforced—that the amount of pleasure derivable from an object is in ratio to the amount of mind which it manifests, it will not be difficult for us to determine the merits of the varied classes of decorative art.

Mere imitation is not ornamentation, and is no more art in the higher sense of the term than writing is in itself literature, for in

order to the production of ornament there must, at least, be adaptation.

Our so-called natural wall papers will illustrate the first, or most elementary, step taken towards the production of ornament, for adaptation has here been considered so far as is absolutely necessary in order that the design may repeat in the mechanical manner necessary to its production, but no further. Here, the effort has been to imitate what is seen, and not to adapt natural forms to the purposes of decoration; the little adaptation essential is rather mourned over than joyed in, and had it not been indispensable would not have been considered.

If mere imitation is ornamentation, the ornamentist must at once give place to the photographer, for his art repeats natural objects with infinitely more accuracy than the most careful draughtsman; but photography cannot invent ornaments as it is devoid of the mental or imaginative faculty, for the working of the mental power is essential to the production of decoration, and, indeed, to the creation of all exalted art.

We have no reason to believe that when the old Greeks were about to produce one of their inimitable statues, they searched the land for the most perfect human form, and simply imitated what they saw; if so, they would have made a cast of the figure: but their statues are not casts; they are types of the human shape, and unquestionably resulted from a consideration of the form of many individuals. I imagine that prior to the production of one of these statues, an enquiry was made into the perfect form of the human body, which investigation might be long continued, and require the observation of the forms of many; and after the mind had produced to itself, in the form of a mental conception, a perfect type worked out in all its details, an enquiry was further instituted into the modification which the form underwent as the action of the figure was brought to that required. After such preparation the production of a figure perfect in form was comparatively easy; the difficulty rested in forming correctly the mental image, and in order to this the great knowledge was required. What we admire, then, in the Greek statue is not the manifestation of mechanical skill or labour in its construction (indeed, no thought of labour is intruded upon the mind when beholding it), but the knowledge manifested by it, and we view it with delight as the embodiment in matter of a conception of the mind.

We see that perfect works of art are not imitations of that which actually exists, but are mind embodied in form, and this is emphatically the case with ornament, for that which is most pleasing and meritorious is that which has most fully mental origin, while that which sets forth things seen is of a less satisfactory character.

Natural adaptations, we have seen, are the lowest form of decorative ornamentation, but the next step, which is much more exalted, consists in the "conventional treatment" of the natural forms.

Vegetable nature, which is alone the type of ornament, treated conventionally, will not be found to be far removed from truth, but will be merely a natural form, or a series of combined forms, neither marred by blights nor disturbed by winds, adapted to the fulfilment of a special purpose, or suited to a particular position, for the most perfect examples of what is usually termed "conventionalised nature" are those which express the intention of nature, if we may thus speak, or are manifestations of natural objects, as undisturbed by surrounding influences and unmarred by casualties.

In attempting the production of the ideal of nature, the utmost care must be used in order to discriminate between truth and deformity; the beauty of a plant cannot be said to be repeated in a drawing, if deformity alone is portrayed; indeed, deformity must be altogether absent from a perfect work, for art has a more exalted mission than that of setting forth what we loathe.

How repugnant to refined feelings it is to behold a marred feature or disfigured limb perpetuated by statuary as a work of art, and although deformity in plants may not be so manifest, and hence not so offensive, as deformity in man, yet its presence detracts from beauty, even if the source of the evil be unperceived.

Conventionalised nature, we say, will be found to consist in the delineation of nature in its purest or typical form; hence it is not imitation, but consists in the embodiment in form of a mental idea of the perfect plant; but this ideal figure is subjected to a process of adaptation.

The intention of the plant in producing the bud of the honey-suckle is that of developing leaves of certain shapes in a given arrangement while they are yet varied in direction; but should a leaf be partially destroyed through blight or some insect preying upon it, it will be necessary to perfect it; and should the leaves on one side of the stem be smaller than those on the other, owing to their receiving an insufficiency of light, they must be enlarged; or, should any part be drawn aside from its proper position, it must again be restored to its place. And in thus deducing from many examples the laws and forms of nature, and producing a truly typical shape, rests the chief secret of the production of the conventional forms of plants.

Still following an ascending series, we find the next grade of decorative art in the embodying in form a mental idea which has been suggested by nature, and yet the ornamental forms are neither a representation of any actually existing form or of any intention of nature.

The illustration already given of the manner in which a mental conception can be embodied in a new form, as that of an opening bud or of a flower, will likewise tend to elucidate our present meaning; and it will be unnecessary that we spend time in showing that a composition may embody an idea derived from a natural object and yet not imitate the object the spirit of which it embodies, for we have before seen that this is possible.

It is apparent that the latter class of ornament is a greater development of mind than either of those which we have already considered, for in the "natural treatment" there is the smallest possible amount of mental power embodied, and although in conventionalised nature there is much more, yet there is considerably less, than in the embodiment of a mere feature in ideal form.

Purely ideal ornament is that which is most exalted, it being wholly a creation of the soul; it is utterly an embodiment of mind in form, or an offspring of the inner man, and its origin and nature give to it its elevated character.

It would be a folly now to enforce the statement that conventional ornament is the highest branch of decorative art, as we have shown that the exaltation of ornament is in ratio to the amount of mind manifested in its creation, and the most careful consideration will verify this truth; for ideal creations are as far above imitations as the mind is above the body—many brutes can imitate, but they cannot create.

We are now enabled to classify ornaments by affinities resulting from equality in respect to the embodiment of mental power. Thus we have as examples of the first, or most exalted, grade of ornament, the Greek, the Moorish, the early English, much of the Indian, many features in the Japanese, and some parts of the Egyptian and Renaissance. In the second class, following a descending series, we may instance much of the Egyptian and Chinese, and a few features in the Greek and Japanese. In the third a great portion of the middle-age work, especially the later Gothic, and many parts of the Chinese or Indian; and in the fourth or last class, much of Pompeian and our modern floral patterns.

While we have thus instanced a few examples which seem, on the whole, illustrations of the grades to which we have called attention, yet in several cases the same part of a decoration will by two features illustrate two grades. Our own floral patterns, while they belong to the fourth or lowest class in view of their colouring, for it is in some parts purely ideal, and in others nearly suggested by natural objects; and, were it not for the more exalted character of the colouring, these patterns would be much coarser than they are.

While there are these grades of ornament, it must also be remembered that there can be good and bad in each class, for if a purely mental creation has not its parts subjected to the laws or requirements of ornament, which we have yet to point out, it cannot be satisfying, and the pain resulting from beholding an imperfect ornament will be in ratio to the class to which it belongs, and will be greater as the class is exalted. Purely ideal art, when degraded, is most offensive, as it is the nobler part of man so debased as to be contemptible.

The lecturer then referred to plants as furnishers of ornament, and pointed out the manner in which a plant grows. Every plant at first consisted of but one body, a cell, and however long that plant might grow, and to whatever extent it might be developed, it was but a multiplication or repetition of what it first appeared. He then referred at length to the horse chestnut, showing how by growth the plant had been repeated and multiplied. A flower was only a very short branch with leaves springing from it, but those leaves were modified in colour and character to perform the particular work which they were destined to fulfil. We saw that plants had repetitions, and so it was in fine art, as might be witnessed in the kaleidoscope, where the pleasing effect was produced by repetition according to rule. Repetition was essential to the production of ornament. He then referred to diagrams of the *begonia* and *petunia*, showing how they repeated their parts. After referring to the repetitions in *mignonette*, the lecturer remarked that alternation was essential to the production of ornament, and the object answered by this alternation was calling attention away from the junction of lines. Passing over symmetry, Dr. Dresser proceeded to the consideration of adaptation. There was a perfect adaptation of the flora to the earth on which it rested. Adaptation in nature might be shown in almost every flower. In the case of decoration it was all-important to consider adaptation as a primary feature. On this point he referred to the forms of the Egyptian and Greek water vessels. It was a peculiar prerogative of art to take hold of a pleasing feature and to possess it: we had to decorate and beautify, but we had to take hold of a pleasing feature and to beautify that. The lecturer passed on to speak of the power of ornament to express ideas with the aid of symbolism, and to argue of the possibility of embodying thought in

abstract ornament, in conventional forms, which he illustrated at some length. All the ornamentist had to do was to make the mind create a certain thing.

IS PARIS IMPROVED?

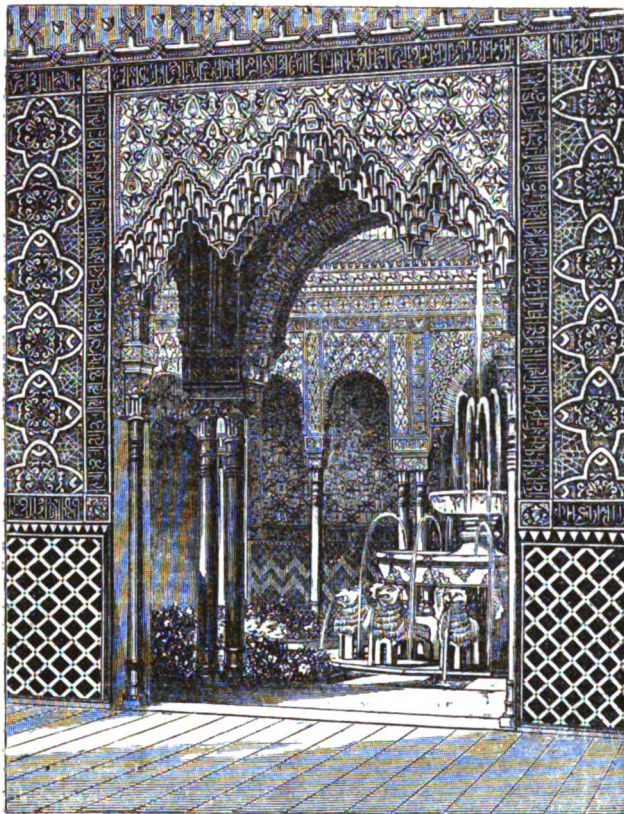
In the course of his opening address at the Royal Institute of British Architects on the 6th ult., Mr. Tite, the President, said that all travellers who returned from Paris were, upon a superficial view of what was taking place there and in almost every town of France, disposed to find fault with the comparatively slow rate at which improvements were effected in London. Within ten years Paris has been, in fact, remodelled throughout, and broad streets, open squares, and fine houses had replaced the ancient, narrow, tortuous dens of filth and impurity. It was to be feared, however, that the real sanitary improvements of Paris had gained little by these changes; and, indeed, so long as the water supply and the sewerage there were conducted on the present systems, little effect could be produced on the infallible test of the value of the sanitary arrangements of a town—the average death rate. He advised those who believe "that they manage all things better in France" to visit the "in-take" of the Chaillot Waterworks, which was unpleasantly near the mouth of one of the great sewers, or to ponder over the charge he would have to pay, even in a private lodging, for the necessity of an Englishman's life—the daily hip bath. Nor was this all, for the embellishments of the town had resolved themselves into heavy charges on its inhabitants, while the utility of many of the costly works now in hand seemed more than questionable. House-rents had risen to fabulous heights in Paris; the poor were driven from their old haunts, and no refuge was provided for them; while, unfortunately, the sanitary defects of the old houses were servilely reproduced in the new ones. No doubt there was something fairy-like in the rapidity and the brilliance of the changes brought about, but these improvements have been effected upon principles of political economy and by an abuse of public credit which would never be tolerated in England. Up to that point what he said at the opening of the session was very fairly reported; but then followed what was not spoken by him, but which seemed to fit the speech remarkably well, and to bear out what he had said. It was—"Go into the courts of the new houses (when they have any), and see what they are like. Count the windows which take their air and light from them; in some of the worst cases you will find eighty windows looking into a well 20 feet square and 70 feet deep. A more striking example still is furnished by the view from the tower of St. Jacques la Boucherie. At your feet run the Rue de Rivoli, east and west, and the Boulevard de Sebastopol, north and south, each some two miles long and straight on end, excepting where the latter twists across the Place du Chatelet and the Seine. Directly you look over the parapet you are struck by the extraordinary compression of the houses which form these two great streets. Almost everywhere else there is a certain little space remaining between the backs of the houses, but behind the splendid buildings which border these gigantic alleys there is no space at all. The houses are packed back to back: they seem all roof. There is only one comparison possible of the scene before you. You fancy at once that an immense plough has driven a furrow down each of the streets, turning up the houses tight against each other, right and left, just like clods in an autumn field. Many of them are simple veneers, one room thick. The average surface of court-yard in the two streets is certainly not one-tenth of the whole area. How could it be otherwise? The land is worth £40 a yard. The air has been taken out of the courts and put into the street; the front rooms have more of it than they had before; but the back ones, which are by far the most numerous, have none at all. Now, as the great majority of the 12,000 new houses, and not a small proportion of the enlarged old ones, are more or less constructed on this plan, can it be denied that their inhabitants pay something more than a simple money price for the changes effected? Is the privation of air and light to be counted for nothing? The Parisians are not toads or tortoises, and cannot live without breathing or seeing. These unhealthy houses have often been attacked, but with no result; their dangers were publicly but vainly indicated in 1857 by the lectures of the Professor of Civil Construction at the Conservatoire des Arts et Métiers, but they go on growing at the rate of thousands a year. Add the certain consequences of this system of lodging to the £319,000,000, and you have the total price of the improvements in Paris." Who was the author of the latter portion of the extract he knew not, but the incident was a curious one, and he had ventured to notice the matter, though he was not the author of the passage.

CITY OF LONDON ENGINEER CORPS.—A new volunteer corps, to be composed of "architects, engineers, builders, artisans, &c., is being formed in London," under the direction of Lieutenant Colonel H. G. Man, as Commanding Officer. For such of our readers as should be desirous of joining, we may add that the head-quarters of the corps are at Church Court Chambers, Old Jewry, London.

CRYSTAL PALACE (SYDENHAM) ARCHITECTURE.

(Continued from page 7.)

THE ALHAMBRA COURT.



ENTRANCE TO ALHAMBRA COURT.

THE part above reproduced is the far-famed Court of Lions, the Tribunal of Justice, the Hall of the Abencerrages, and the Divan of the Palace of the Alhambra. The outside of these courts is covered with diaper work, consisting of inscriptions in Arabic character, of conventional representation of flowers and of flowing decoration, over which the eye wanders, delighted with the harmony of the colouring and the variety of the ornament. Entering through the central archway, we see before us the fountain, supported by the lions that give name to the court; and, through the archway opposite, the splendid fringe of the stalactite roof of the Hall of the Abencerrages, composed in the original of five thousand separate pieces, which key into and support each other. The Court of Lions here is 75 feet long, just two-thirds the length of the original; the columns are the same height and size as the columns of which they are restorations, and the arches that spring from them are also of the actual size of the original arches. Over the columns is inscribed in Cufic characters, "*And there is no conqueror but God.*" Round the basin of the fountain is an Arabic poem, from which we take two specimens:—

"Oh thou who beholdest these Lions crouching—fear not!
Life is wanting to enable them to show their fury!"

Less, we must think, a needless caution to the intruder, than the poet's allowed flattery to his brother artist. In the verse of Greece and modern Italy, we find the same heightened expression of admiration for the almost animating art of sculpture.

In this brilliant court there are no statues to examine, for the religion of the Moors forbade the representation of living objects; in truth, the exquisitely wrought tracery on every side, upon which the Moorish mind was thus forced to concentrate all its artistic power and skill, is in itself sufficient exclusively to arrest and to enchain the attention. A curious infringement, however, of the Mahomedan law just now mentioned, which proscribes the representation of natural objects, is observable in the lions supporting the fountain, and in three paintings, which occupy a portion of the original ceilings in the Tribunal of Justice and the two

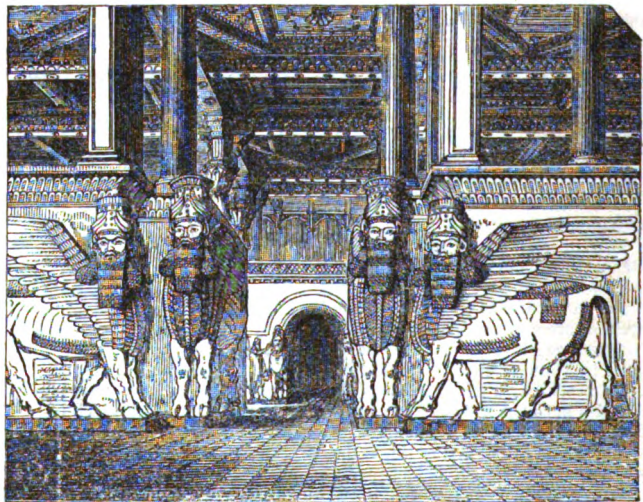
alcoves adjoining. It is also to be remarked that, although the followers of Mahommed scrupulously avoid stepping upon a piece of paper, lest the name of God should be written thereon, yet that name is found repeatedly upon the tile floor of the same tribunal. However, during the state visit of the Prince of Oude to the Crystal Palace in 1858, while they were inspecting this court, it was noticed that they, and many of their attendants, avoided as much as possible stepping upon the inscribed pavement. All the courts on this side of the building, up to this point, were erected under the superintendence of Mr. Owen Jones. Proceeding onward, we quit the Alhambra, and emerge into the north transept. The visitor then directs his attention to

THE ASSYRIAN COURT,

which faces him. This court is larger than any other appropriated to the illustration of one phase of art. It is 120 feet long, 50 feet wide, and has an elevation of 40 feet from the floor line. Its chief interest, however, consists in the fact of its illustrating a style of art of which no specimen has hitherto been presented in Europe, and which, indeed, until the last few years, lay unknown even in the country where its remains have been unexpectedly brought to light.

The whole of the lower portion of the exterior front and sides of the court is taken from the palace at Khorsabad, the great winged bulls, the giants strangling the lions (supposed to represent the Assyrian Hercules), and the other features, being casts from the objects sent from the site of the palace, to the Louvre, and arranged, as far as circumstances admit, in the relative position of the original objects as they were discovered. The dwarf columns on the walls, with the double bull capitals, are modelled with details found at Persopolis and Susa, whilst the cornice and battlements above have been copied from representations found in one of the bas-reliefs at Khorsabad. The painting of the cornice is in strict accordance with the recent discoveries of that place.

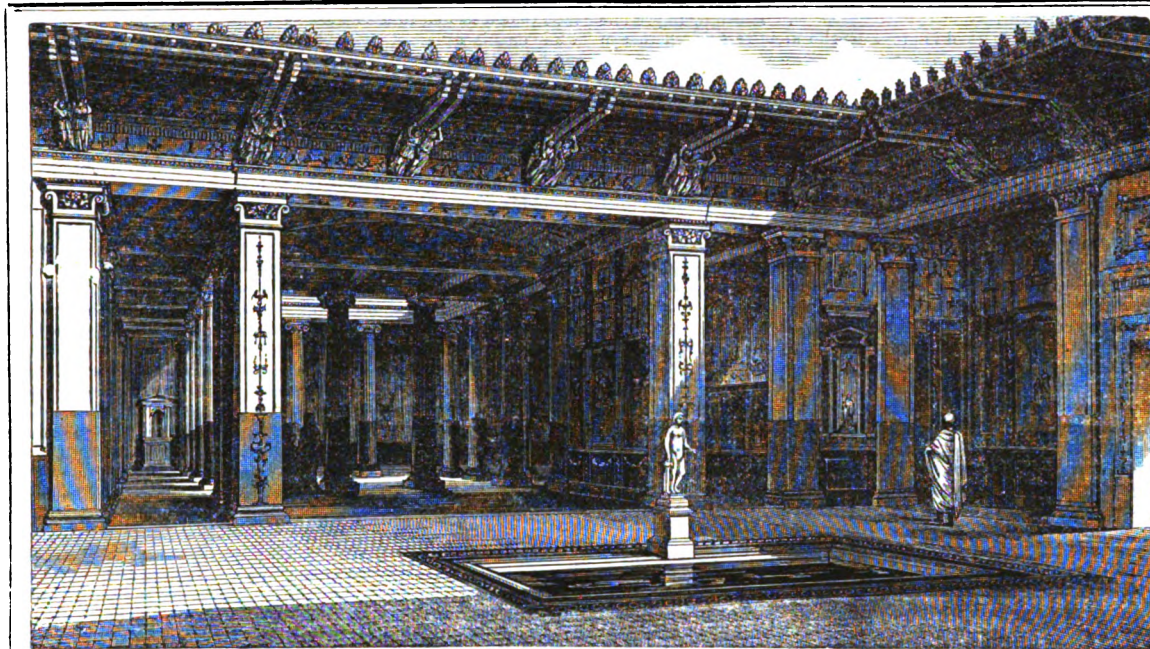
Entering through the opening in the side, guarded by colossal bulls, the visitor finds himself in a large hall, in the centre of which stand four great columns copied literally from columns found at Susa and Persopolis. The walls of the hall are covered with sculpture, cast from originals brought to this country by Mr. Layard from his excavations at Nimroud, and deposited in the British Museum.



ENTRANCE TO THE NINEVEH COURT.

Upon the sculptures are engraved the arrow-headed inscriptions which have been so recently, and in so remarkable a manner, deciphered by Colonel Rawlinson and Dr. Hincks. Above these is a painting of animals and trees, copied from one found at Khorsabad. The roof crowning the hall represents the form of ceiling usual in that part of Asia, but is rather a vehicle for the display of the various coloured patterns of Assyrian art than a direct copy of anything found in the Assyrian palaces. In the centre of the great hall the visitor will notice a decorated archway at the back of the court. The very recent discovery of this highly ornamental arch at Khorsabad, and also of a pointed example, proves—somewhat unexpectedly—that the Assyrian people were far from ignorant of the value of these beautiful features of Architecture.

(To be continued.)



THE POMPEIAN COURT.

NEW HOUSES OF PARLIAMENT, SYDNEY.

Irish architectural talent has met with graceful recognition at the antipodes, for we find that in the competition for the best design for the above-named important buildings, that submitted by Mr. W. H. Lynn (Messrs. Lanyon, Lynn, and Lanyon), of Dublin, Architect, was adjudged the first prize of £600. This is all the more complimentary as numerous Foreign, English, and Colonial architects competed. Mr. Lynn's design is said to be—as may reasonably be expected—a truly beautiful composition in the Gothic style, with lofty towers, high pitched roofs, and picturesque outline. The probable expenditure is estimated by the architect to the local board of public works at £642,205. A Gothic design by Messrs. Stent and Haver, of London—who also contributed a classic one—obtained second prize.

THE ARRANGEMENT OF FORTS IN IRELAND.

THE President of the Royal Irish Academy (the very Rev. Dean Graves) communicated at a meeting of that body on the 27th ult. the substance of a paper which he intended to bring before the Academy in a more perfect form on this subject, commonly, but erroneously, called Danish forts, especially in reference to those forts found in the county Kerry. He illustrated his statements by a map, prepared upon the basis of the Ordnance Survey. He had observed that all these forts, some of which were made of clay and others of stone (bee-hive shaped), were on straight lines, which must have been the result of design. These lines frequently covered elevations of stones, ancient castles, &c., and correspond in many instances with the physical arrangement of the county, following the course of mountain passes and rivers to the sea coast. We await the promised paper with much interest.

THE ORDNANCE FRAUDS.

MESSRS. HAMILTON CONNOLLY (Chief Clerk in the War Department Office, Dublin) and John McIlwaine (Contractor), who were at last Nisi Prius sittings found "guilty," as at the time announced, were on the 27th ult. brought up for judgment.

Judge O'Brien pronounced sentence after reviewing the general bearings of the case, in the following terms:—

"It is well for you, Hamilton Connolly, that the forgery of which you have been convicted is only a misdemeanour, for which the court cannot award penal servitude. The conspiracy of which both of you have also been convicted is only a misdemeanour. With respect to you, Hamilton Connolly, we have come to the conclusion that there are circumstances in your case, your position and the office you held which aggravate your offence, and the sentence of the court is that you be imprisoned for a term of two years from your committal, and also pay to the crown a fine of £1000. You, John McIlwaine have been recommended to mercy by the jury, from a feeling that you were led into this by the other prisoner. My brother Hayes concurs in that recommendation. We think that the ends of justice will be sufficiently satisfied, by sentencing you to imprisonment for a period of twelve months from your committal, and to pay a fine to the crown of £1000.

ART SCHOOLS—ROYAL DUBLIN SOCIETY.

The annual distribution of prizes took place on the 27th ult., the Lord Lieutenant presiding. The report was read by the Assistant-Secretary, and contained the following passages:—

One student obtained a "National Medallion," which is a distinction of the highest order conferred by the department of science and art; to four have been awarded "Prize Studentships," while eighteen have gained "Local Medals;" to forty six others, prizes in books, drawing instruments, &c., have been adjudged in testimony and approbation of their highly satisfactory progress and industry, in all, making a total of sixty-four rewards of merit. Although the works sent in for competition for the Taylor prizes are not so numerous as last year, there are evident and striking tokens of improvement in the figure department, which have induced the trustees to award "the Taylor Scholarship," value £20 (a distinction not conferred last year, in consequence of a deficiency of merit) to Mr. Crowley; and the full prize of £10 for his historical painting, "The Baptism of the King of Munster by St. Patrick," to Mr. Perry; one of £5 for Landscape to Miss Alment; while another of £3 for Agricultural Drawing has been awarded to Miss White. Since the establishment of an association in this city having such benevolent and useful objects in contemplation as to promote the employment of women," tending to raise and elevate a large portion of our race in the social scale, by honourable labour, the Royal Dublin Society has empowered your committee to extend its hitherto limited sphere in imparting a knowledge of this most useful art; and it trusts that, in so doing, it may become the means of providing interesting and lucrative employment to a large and respectable class of the community, in advancing whose welfare it cannot but sincerely and deeply sympathise.

His Excellency next distributed the prizes to the various successful competitors, for a list of which we cannot afford room.

Mr. Maunsell, Hon. Secretary, in moving the thanks of the meeting to his Excellency, said—Who could tell what feeling of emulation might be awakened among those who had received the prizes from his Excellency's hand. It was told that on one occasion at a dinner party at the house of the late Samuel Rogers, a number of the notables of the day were assembled—amongst them the late Sir Francis Chantrey. Laying his hand on a mahogany console, he observed it curiously, and directing the attention of his guest to it, said—"Do you remember a workman who was sent to you many years ago to carve that console at 5s. a-day? I am that workman." He, like many others, had begun on small beginnings, and had won a name which would never be forgotten. The presence of him who occupied so high a position in the State, added no slight prestige to their proceedings, when they regarded the refinement of modern living which was daily calling for scholars in design, scholars in architecture—in everything, in fact, which was important in a school of design—they could not but hope that such a state of things should tend to extend the value of these schools, and to bring pupils in greater numbers to their lists. The speaker then proceeded to refer to the increased demand for artistic exertion in architectural drawing, and to the improvement of the taste displayed in modern church building in Dublin as compared with the period when "Trinity Church" and Westland-row Chapel were erected, and in conclusion expressed a hope that if another year should elapse, and find his Excellency still in Ireland, they might have again the honour of his presence.

The Lord Lieutenant, in the course of his reply, said—I quite agree with Mr. Maunsell in the panegyric which he pronounced upon the improved architecture of this city. It is true that in past times you had very fine models to go upon, but still until within a compara-

tively recent period very little has been done. It is now impossible not to perceive the marked improvement in architecture, whether in churches, in museums, in clubs, and what is, perhaps, not least important, in the shop fronts of your streets. It is still further very gratifying to reflect that besides such occasional exhibitions as we all enjoyed for the last season, we have the prospect of seeing very soon a permanent gallery for the reception of works of art opened within the precincts of the Royal Dublin Society, and I trust that this new gallery is destined in the largest degree to direct the taste, to guide the fancy, and to stimulate the exertions of the present and future generations of the inhabitants of Dublin, by the exhibitions of the models of departed excellence. The proceedings then terminated.

[Mr. Henry M'Manus, R.H.A., is, and has been for many years, the efficient head master of these schools.—Ed.]

CORK SCHOOL OF DESIGN.

ON the 20th ult. the annual distribution of prizes took place in the lecture-room of the Royal Cork Institution, Mr. Maguire, M.P., presiding. Amongst the company present were Sir John Benson, C.E., W. Atkins, architect, W. Brennan, master of the school, and several of the most respected citizens. Mr. Maguire delivered an admirable address, in which he said, when last I had the honour of standing in the same position which I now have the privilege of occupying,—namely, in October, 1853,—the Cork School of Art was already a success, although its career had then been but brief, and its origin of recent date. But, as events have since proved, the school is at this moment placed in a far safer condition, and it rests on a sounder and more secure basis, than it did in 1853. Then, it was in the first flush of its youthful triumph, fully realising the hopes of its ardent friends and zealous promoters; whereas now it can boast of having gone through eight additional years of usefulness, and passed through periods so critical as to threaten its very existence. At that time, it had for its competitors many proud and flourishing schools, in this country as well as in other parts of the United Kingdom; but of those, which were then so full of hope and confidence, some are now no more. They had their principal support in what was known as the "Government Grant;" and that having been withdrawn, for reasons the policy of which it is not necessary for me here to criticise or question, many schools which mainly rested on so insecure, and indeed capricious a foundation, fell to the ground, some of them, perhaps, never to rise again. Fortunately for the Cork School of Art, it was established in the midst of a community with whom the love of art assumed somewhat of an instinct, and from among whom had gone forth many who, while winning fame and honour in the highest paths of distinction, as painters, as sculptors, or as architects, shed lustre upon this their native city. And so, when it was proposed that the Corporation should make an annual grant in sustenance of this School, the proposition was carried with an alacrity and unanimity creditable alike to the liberality and public spirit of that body—although such an allocation of its funds was not in accordance with the strict letter of the law. Happily, the opportunity arose of placing the grant, or subsidy, on a surer and sounder basis; and for some years past the ratepayers of Cork have been legally assisting, through a rate of a half-penny in the pound, this, one of the most useful and valuable of their educational institutions; the benefits of which are not confined to any one class or rank, but are diffused through all classes and ranks and grades of the community, shedding the influence of grace and beauty, of taste and refinement, as well upon the humblest homes, even where labour fights its daily battle with poverty, as upon the mansions of the rich and proud, where luxury ministers to every want, artificial as well as real. I can now confidently state that the Cork School of Art occupies this day a better position, and rests upon a safer and more permanent foundation, than it did in 1853, when I had to congratulate its pupils and its patrons upon its brief but brilliant career. In that important essential, the progress of the pupils, the School is not only maintaining its position, but achieving more marked success. Thus, while the School of Dublin, the metropolis of our country, which possesses special advantages to which Cork cannot aspire, obtained but 17 medals this year, the Cork School carried off 21. As to the prizes, 31 were granted to the Central School, and 7 were carried off by the Artizan Class. Besides these awarded to the pupils of the School of Art, or Central School, 9 prizes and 11 "Honourable Mentions," were adjudged to the pupils from the National Schools, and 7 of the pupils of this School, including 2 of the Artizan Class, obtained appointments as "prize students;" the advantage of which is, that they can prosecute their studies in any School of Art in the United Kingdom, free of charge, for one year—which privilege they can renew from year to year by taking a local medal. The Artizan Class consists of between 60 and 70 pupils, including workmen, apprentices, and young persons about to be apprenticed to some mechanical trade or craft. Of these, between 40 and 50 are actual working men—literally artizans, who quit their workshop for the class-room, and the implements of their trade for the crayon and the chalk. The number is hopeful and encouraging rather than sufficient or satisfactory. One

feels that it is well to have even so many of this interesting class, while one is ashamed at having so few. With such advantages offered to them, and at terms so easy, and with so large a number of artizans in the city, whose labour would be materially assisted, whose capacity would be increased and strengthened, whose skill and taste would be developed by an art education, the wonder is that not more than between 40 and 50 grown men are now enrolled in this class. I shall not insult so high-spirited and intelligent a body of men as the artizans of Cork by supposing that it is the quarterly fee of 5s. that holds them back from this school. Why this trifling sum would be freely spent by almost any one of them in the enjoyment of a single day, or the indulgence of a single night. If it be not the fee which stands in the way, what is it? It must be indifference, or negligence or, what is much more to be deplored, a culpable disregard of what is improving and elevating. I like to see the working man aspiring—ever aiming at a higher position; and I know no spectacle so inspiring or indeed more glorious than that of the working man rising by his own honest energy, by his manly toil and patient industry, above the ordinary lot which is common to his order, and pushing his way to position and independence, until the employed of yesterday becomes the employer of to-day, and the artizan is merged in the master. I put it to the working men of my native city, does not this School of Art offer to the self-respecting and justly ambitious artizan one means, and a potent means, of improvement, progress, and marked elevation in the social scale? If they doubt it, let them consult the brief annals of this School, and the history of its Artizan Class; and they will find how, already, the house carpenter has become the successful builder; how the stone mason has swelled into the contractor; how the cabinet-maker has developed into the graceful designer or elegant ornament; how the house-painter has grown into the accomplished decorator; how the journeyman engineer has been elected to the responsible position of managing foreman; how the carver of common-places and mere conventional ornament has acquired taste and skill and grace, and reputation, by his acquaintance with art, even in its elementary forms—how rank, and honour, and independence, have been won by the art-workman, who without this training of the eye and hand and taste, would have remained for ever a mere drudge, performing his daily task without energy and without spirit, satisfied, it might be, with mere sensual enjoyments, or occasionally relieving his discontented mind by grumbling at his fate, and envying the prosperity of his employer. If rightly employed, there is the power of a magician in the little implement which I would place in the hand of the working man. It will help him in his hour of labour, and it will delight him in his moments of leisure. We are told that every French soldier in the army of the Great Napoleon carried a marshal's baton in his knapsack. Now I would slip into the breast-bosom of the workman a little instrument which, if he only understand its proper use, would be a companion and a friend to him in his wanderings—which would prove his best passport in strange cities, which would fling open to him the doors of every workshop, which would enable him to push his way up, and up, and up, in the social scale, whenever the right time and the favourable chance afforded him the looked-for opportunity of showing what was in him. Need I say that that little instrument is the pencil of the ready draughtsman?

The Chairman then proceeded to review the arrangements connected with the pupils of the national schools, and, passing on to the consideration of the influence of art training, said—I remember how, in my address to a crowded audience, now more than eight years since, I thought it necessary to try and disabuse your "sensible" and "practical" people of certain notions which I believed them to entertain as to the impolicy of imparting a knowledge of art to the working man. On that occasion I used these words:—"If the general diffusion of Art Education resulted only in the propagation of new races of what the world, with a courtesy purely technical, terms artists—new hordes of bad painters and worse sculptors—if teaching the elementary principles of Art to the mechanic and artizan placed him above his business, or rendered him discontented with his craft, I have no hesitation in saying that the school through which that fatal education, and those pernicious principles, were imparted, might be better termed a School of Confusion than a School of Design. But we are here this night to inquire whether those fears were well-grounded, whether those dire prognostications have been verified by the result; and we are in a position so to inquire; for this School was founded in January, 1850, and has been in active operation for a period of nearly three years—a time quite sufficient to develop the seeds of injury, and gather in more than one harvest of evil. My assertion is that the Cork School of Design has succeeded in educating not a race of artists, but of Art workmen—not of painters and sculptors, but accomplished draughtsmen, skilful carvers, expert modellers, graceful and ready designers, clever pattern drawers, and excellent lithographers—to all of whom an acquaintance with the principles of art has opened up, not so much new sources of delight, which it has done, but the means of advancement and independence in life. The records of the school furnish conclusive evidence as to this most happy result." On the same occasion, but towards the conclusion of the address, I

again referred to the influence of art training in another and more important sense; and the words then employed are so fully borne out by the experience of eight additional years, that they are as applicable at this moment as they were when first uttered. Because of their literal correctness as a testimony, and their force as an illustration, I shall ask your indulgence while I thus repeat myself:—"I stated my opinion, in the opening of this address, and if imparting a knowledge of the principles of art to the workman tended to dissatisfy him with his profession, and disgust him with his craft, it would be most imprudent to impart such knowledge; but, if the art-education which this school affords the artizan were productive of injury to his moral conduct—if it rendered him careless or indifferent in the discharge of his daily occupation—if it induced in him a desire for false pleasure—if it imparted to the hard-working son of labour any of those faults which the world is but too apt to overlook when associated with genius—as if it were indispensable that the diamond should be debased by a flaw; if it made the workman other than what the true workman ought to be, and is when he rightly appreciates his position in the social scale, I should be found amongst its most strenuous opponents, its most earnest denouncers. But what is the real fact? The effect is almost marvellous, moral as well as mental. It is displayed as well in his improved habits of life, and his propriety and even dignity of demeanour as in his greater intelligence and refinement. Steady, sober, orderly, and self-respecting, the art-pupil exhibits in his own person a noble evidence of the influence which lofty and generous pursuits ever have upon the mind and heart of man. Fully conscious of the beauty and sacredness of that art which he worships, even at an humble distance, he disdains to bow as a slave before those base altars upon which too many of his class sacrifice their pride, their honour, their independence, the peace of their families—all that man ought to cling to with the tenacity of life itself. While his senseless and misguided relative is wasting his health, his substance, and his character in low dissipation, the art-pupil is diligently engaged in his allotted task, or perusing with delight and benefit the pages of some well-selected work, which adds new ideas to his mind, new attraction to his study. These students feel conscious of being elevated by their pursuits; and being so elevated they are determined not to abandon their honourable and enviable position. And to their credit, as well as to that of institutions of this kind, it must be distinctly understood that they are not inflated by vain notions, or led astray by a false ambition. They do not desire to become artists in the ordinary sense of the term. Their ambition is noble and rational. They aspire to raise and dignify their craft by infusing into it principles of grace, and elegance, and beauty—they desire to render the artizan a being of thought, taste, and refinement, and not a mere machine, incapable of anything higher or more responsible than the honest performance of a day's mindless drudgery—they wish, in fine, to develop the enjoyment of those faculties which were given to them in common with others, but which, from the want of proper cultivation, have been to them as a sealed book, whose priceless treasures are hidden from the dull eye of an unawakened intellect. These are a few of the results which have followed from the diffusion of art-education amongst a class whom it has been too much the custom to depreciate, but who, in adopting such means of improvement as this school affords, are, I rejoice to say it, effectually enhancing their reputation in public esteem."

It is, fortunate, at least for you, that I cannot trespass further on your attention, or I should have been tempted to the wider and more fascinating points of view in which the subject of art suggests itself on an occasion of this kind; so I shall therefore conclude with an announcement that I am satisfied will prove more pleasing, and certainly more useful, than any dissertation in which I could possibly indulge. As Mayor of Cork, and therefore President of the School for the year 1862, I shall be happy, with the approbation of the Committee, to apportion the sum of £20 in the following prizes, to be contended for in October of that year, namely:—

- £3 for the best shaded drawing from the antique.
 - £3 for the best drawing of a machine from actual measurement.
 - £3 for the best architectural drawing, the subject to be selected by the Committee.
 - £3 for the best original design applicable to some branch of local manufacture.
 - £3 for the best landscape from nature, in oils or water-colour.
 - £1 for the best ornamental outline drawing from the cast.
 - £1 for the best figure outline drawing from the flat.
- And for the pupils of the National Schools:—
- £1 for best series of geometrical problems.
 - £1 for the best ornamental outline from the flat.
 - £1 for the best figure outline from the flat.

I shall also offer prizes, to the value of £5, to be competed for by the pupils of the drawing department of the Christian Schools.

Mr. Brennan, the talented and courteous master of the School, then read out the list of medals and other prizes, which were accordingly handed in their order to the pupils, male and female, and the meeting shortly after separated highly gratified at the proceedings.

THE ART-UNION OF IRELAND.

THE following address has been adopted by the committee of this Institution prior to commencing operations for the drawing of 1862, and we reprint it substantially that the objects of such a valuable auxiliary to Art progress may find in our columns a medium for the fullest publicity. Further, we would commend it most earnestly to the consideration of our general readers, and especially to those whose aspirations in artistic matters are of a loftier character than those resulting from mere pecuniary speculation:—

In their first address the society put forward the true purposes of such associations as having relation, first, to the artist, secondly, to the public. It was stated that the complaints of artists, more especially in Ireland, had long been that they suffered from the decline of patronage. To whatever cause attributable, the fact of this decline was patent and undeniable. Without encouragement the artist's struggle became hopeless. Year after year his works were displayed in vain, and he either abandoned his studies in despair, or sought in a wealthier land and from a more generous public the patronage he had failed to secure at home. "Art itself languishes," the address continued, "and perhaps ungenerous criticism will not scruple to justify, in this decay, the cold neglect, whose chilling influence has produced or accelerated the blight. To supply, by the combined aid of general but moderate subscriptions, this absence of individual patronage, is, as it ought to be, the first object of an Art-Union; and that association best fulfils the purpose of its existence, which the most fully and largely secures to the artist the purchase of his works. It is so far, and in proportion as their funds have been thus devoted, that the Art-Unions which have been, or are now, in existence, have improved the condition of artists as a body, and advanced the general character of Art exhibitions in England and Scotland. Let us hope that it may yet be possible, by like means, to produce similar results in Ireland. As regards the public, the influence of Art-Unions, if well directed, cannot fail to be of considerable importance, apart from, and above, the mere gratification of success in the chances of distribution, or even the higher enjoyment every generous mind must feel in the assistance thus given to struggling talent. They ought to be made the means of improving public taste, advancing the knowledge of the principles of art, and teaching an enlightened judgment and a well-founded power of discrimination."

The state of Art in Ireland in 1858, was but too truly pictured in the foregoing address. The appeal thus made met a response creditable to the country; and the Art-Union of Ireland exceeded in its first two years the success of any Art-Union which rested solely on the original merits and intention of such associations, and which did not offer a bonus or other adventitious attraction to subscribers. In 1857 there was no exhibition in the Royal Hibernian Academy, and in that of 1858 the entire sales did not exceed £150. Such a state of things was indeed most disheartening; but in 1859, through the direct agency of the Art-Union of Ireland, over £700 were expended in the exhibition, and private purchasers, stimulated in a great degree by the formation of the institution, increased the amount to £1,100. During the three years' operations of the Society, in 1859, 1860, and 1861, a sum of £1,730 has been expended by its prizeholders in the purchase of pictures, and nearly £400 in minor prizes. The results as evidenced in the new impetus given to artists, and the increased attractions of the public exhibitions, have been most gratifying to those who have watched with interest the progress of Art in the country, and have satisfied the promoters of the Art-Union of Ireland, that both the interest of the artist and the public have been advanced by means of their association, and that they are justified in an appeal, on broad national grounds, for extended support. There can be little doubt that a much more marked success would have attended the Art-Union of Ireland, as to the amount of its annual subscriptions, if the system of shilling art-unions had not so suddenly sprang up and expanded. That such associations afford advantages to classes of society who could not otherwise enjoy them is undeniable, and large sums have been thus collected, and expended in the purchase of works of Art.

As regards the mere speculative question of the chances of success in their annual distributions, the Committee of the Art-Union of Ireland may rely upon the fact, that the interests of their subscribers of one guinea each are as well, if not better, provided for at that rate, than are those of the participants in the shilling subscription; seeing that the number of prizes proportioned to subscribers must be increased in the inverse ratio to the amount of individual subscription, and the average value of the prizes be thereby reduced. They, however, rest their claim to public support on a much higher ground than that of a tempting minimum of subscription, or an equivalent return to each subscriber for the sum he pays, as sought to be carried out in art-unions which give engravings, or other works of art to each subscriber. Their primary objects are to improve the condition of the artist, to encourage him in his progress to secure thereby an advance in the general character of our Art Exhibitions, and thus to promote the enjoyment of the public, and improve the public taste. They earnestly invite all who have already contributed to their funds to

continue their annual subscriptions, while they would impress upon the enlightened and wealthier classes of Ireland, the duty of fostering Art "by the combined aid of general, but individual, subscriptions;" and they would point to the progress already made as a sure guarantee of future success in the development of native talent, if only an adequate measure of public support be given.

Finally, they would draw attention to the fact that annual exhibitions, the best means of gratifying and educating public taste, can only be maintained by ensuring the purchase of works of Art; and that in a country where individual patronage is not extensive, such purchases can only be upheld by the agency of a permanent Art-Union.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

An ordinary general meeting was held on Monday evening 20th ult., Mr. Digby Wyatt, V.P., in the chair. Mr. Lewis, Hon. Sec., drew attention to some specimens of zinc by Mr. James Edmeston.

The Great Exhibition.—The Chairman stated that the Art Designs Committee for the coming Great Exhibition, would be glad to receive contributions of designs for ceilings and moral works, which could come under the head of art manufacture, by Gibbs, Adams, Chambers, Soane, Smirke, Barry, Jones, Wren, and other deceased architects. It would be well for gentlemen who might have some of those things in their possession, to send them to the Committee as contributions for the Exhibition.

Mr. G. Godwin believed a great misconception existed out of doors, in reference to the obtaining of space as being now too late; but he knew that many would contribute pictures for the Exhibition, if they were aware they would still be received, to make up a series, or to complete any portion of the collection.

The Chairman believed the arrangements for the pictures were very nearly completed, *though no doubt eligible specimens would still be received.* But the arrangements of the Art Designs Committee were not in a complete state at present.

After the reading of Mr. Robert's paper on "the essentials of a healthy dwelling," &c., Mr. Chadwick thought "that humanity was greatly indebted to Mr. Roberts for the persevering and energetic manner in which he had brought forward the *generalia* of his paper before different societies and institutions in different counties of Europe. But he thought that in the present state of the subject they might go beyond *generalia* and treat the subject analytically. As to ventilation, what was the minimum size of a room for five persons, for two persons, and for one person? Then, what was the best apparatus for warming? Again, the abolition of the cesspool being agreed upon, what was the best apparatus that could be used?—as some said it required two gallons of water, and others only half a gallon. What was the best method for cottage dwellings? The cheapness of construction would be covered very much by the amount of consumption, and the amount of consumption increased when those points were settled. In the case of warming, for example, the poor man's fireplace in London had generally consumed about one hundred weight of fuel, while in Warwickshire and other districts the quantity consumed was two hundred or more. Now, the question was, which was the best fireplace to be constructed? And another question was, what was the best kind of wall? If they went abroad to crowded residences they would find that where a body had been retained any time the dead man's smell was adhering to the wall. Damp caused many evils. The common brick absorbed about a pint of moisture. At the time of the Board of Health, when in some districts fever and other diseases were in every house, the people were ordered to remove for safety, and the houses were ordered to be limewashed. In some cases the landlords would not do it, and the consequence was, that when the population returned, the disease also returned. As to absorbent walls, the common brick absorbed something like a pint of moisture, and in a poor cottage every pint of moisture got away was a good object. They got larger bricks, hard-burned, and non-absorbent. They got out some years ago some examples of walls of that kind, the 9-inch wall made with bricks of a very large size, such as 9 by 18. And they were made cheaply, at something like 3s. the superficial yard, instead of 4s. or 5s. for a common wall. He remembered the late Mr. Thomas Cubitt saying to him that if he introduced a new kind of brick the workmen would strike, because it was new. Only recently when down in Lancashire, he was told that where Platt's machine was introduced for making brick of immense pressure, and having the quality of non-absorbency, the workmen had struck, and it was said that some were induced to do so by the brickmakers. The next consideration would be how they were to be put together in the production of a cottage, and lead to a reduction in its price, a great desideratum in the matter. The settlement of the materials, and of the apparatus to be employed should be well considered; the analytical process was the best mode of proceeding, for by it the greatest good could be produced."

Mr. Jennings was heterodox upon some points the lecturer had insisted upon. As to the removal of cesspools, in building cottages in the country, it was impossible for them to get rid of cesspools. If cottages were to have the benefit of their gardens they must have cesspools, and he spoke as a proprietor of cottage property in the country. What was wanted was to get people to properly occupy the cottages; there was not the slightest difficulty in getting people to build cottages if they got tenants to occupy them properly, which there was great difficulty in getting. The letting of rooms was a most important question, but they could not stop it. The Nuisances removal Act had not worked advantageously. As to ventilation, he believed it was not so difficult if they could but persuade the occupiers not to paste up the ventilators. He had carried up ventilating flues with every stack of chimneys for cottages, and had found that very successful. It was the fashion to use casements to cottage windows, but that was a mistake. If they expected to get places ventilated they should have sashes. As to roofs, slate had an advantage over tile for roofs. Wooden floors ought to have floor-cloths.

Mr. G. Godwin knew for certain that thousands were dying every year because the arrangements of dwellings were not right, and that want of circulation and ventilation produced fever and other diseases. They knew that emanations from decaying matter would produce typhoid fever, which was desolating the homes of this country, and which has deprived us of that most valuable life—the Prince Consort. He suggested the propriety of appointing a committee of the Institute to investigate all recent improvements, and the possibility of constructing proper houses. A brick might be impermeable on the outside, and so arranged as to adhere to mortar. Let them endeavour to have ventilated rooms. The bad ventilation of bed-rooms, ought most seriously to be taken up; also whether they could not improve roofs. The only three clauses of the Building Act relating to sanitary matters had proved utter failures. If certain principles were laid down, they should then be able to procure a healthy house.

ARCHITECTURAL ASSOCIATION.

At the last meeting of this body, after some preliminary business and discussion on Mr. Druce's paper on "Public Memorials," the Chairman (Mr. T. Roger Smith) observed that "the two things a monument ought to bear were, the name of the deceased, and, if possible, his personal appearance. A monument in which the name of the deceased was forgotten, ceased to be a monument at all. He considered the first office of a monument was to represent some individual, his name, his person, and his deeds, if there were space for it. The first duty, it seemed to him, was wherever practicable to have an effigy, then a series of bassi-relief, illustrative of historical events in which the deceased took an interest, or of events more immediately connected with the individual. It also seemed to him that hospitals, foundations, and various other charities which had been spoken of were liable to be perverted, so far as the names of the founders were concerned, and many of the colleges of this country did not bear the names of the founders. He was sorry to differ from those who held the utilitarian view in regard to memorials. The commemoration of so great a man as the Prince Consort, in reference to a national monument, should be the great object, without the association of with it of the cure of disease or the setting of broken limbs. One modern form of monuments had escaped the notice of the lecturer, that of memorial churches, and some of our most beautiful sacred buildings had been erected as memorial churches. It remained to be seen what would be their success, but he was afraid they would be open to the objection of hospitals and other foundations. One of the most appropriate modes of having a monument or memorial was a column for a statue, such as that at Brussels, and the *Colonne de Juillet*, at Paris. Perhaps the finest combination of architecture and Sculpture attempted in this country was exemplified in the Scott monument at Edinburgh, where that monument struck him as being singularly successful. Another instance to which he wished to refer was the beautiful column which Mr. Scott had put up in Westminster, one of the most successful of modern works, and one of the few modern works of which London might be well proud. As to monumental brasses, an esteemed member of the Architectural Association, had put up a beautiful monument, which consisted of an incised marble slab instead of brass; it had been erected in a church, and the result was extremely happy, while the expense was comparatively moderate. This was a new style of monument in England, and one which many, perhaps, would prefer to monumental brass, and it was extremely beautiful in its execution.

INJURIES TO A HOUSE.—Before Baron Deasy and a common jury, at the Consolidated Nisi Prius Court, on the 29th ult., a Mr. Nebam, of Dunmanway, obtained a verdict of £20 for injuries sustained by his house in the removal of a gable wall adjoining.

Notes of New Works.

A new riding school is to be erected at Island-bridge barracks by the War Department; also schoolmaster's quarters at Arbour Hill.

The works on the Sligo extension line are proceeding so quickly that it is expected to be open for traffic in the course of the summer.

It is in contemplation by the directors of the Dublin and Wicklow Railway to erect a station near Ardenza Terrace, Seapoint, for the accommodation of the residents of that locality.

The committee of the memorial to the late Reverend Ambrose Doyle, C.C., are receiving designs for staining and decorating the great eastern window in St. Catherine's Church, Meath-street, for that purpose.

A magnificent mansion is about to be built at Portumna for the Marquess of Clanricarde, according to designs by Sir Thomas Deane and Son, architects. The style adopted is French Gothic, and the general character of the groupings is most picturesque and effective. In the main buildings are comprehended on ground floor an extensive suite of apartments, together with grand hall and staircase, spacious corridors, &c., and on the upper floor are various bed, dressing, and bath-rooms, &c., &c. Numerous and suitable offices are also attached. Messrs. Cockburn and Sons have been declared the contractors, at a sum under £15,000.

Some new villas of architectural character are being erected in the town of Youghal, the most important of which are a pair over the railway (Mr. Sippi, proprietor), and designed by Mr. Edward Fitzgerald, a local architect.

A Presbytery is also being erected at Killeagh, near same town, for which Mr. Fitzgerald is also the architect. A fine chapel and schools has been just completed close by.

The waste ground, adjoining the terminus in Amlens-street, of the Dublin and Drogheda Railway Company is being enclosed in with a plain but substantial wall. A considerable extension of the terminal buildings has for some time been in contemplation.

The new Presbyterian Church, Rathgar, will be opened for Divine service on to-morrow. Although particulars of this building have already been given in the DUBLIN BUILDER, we may now repeat that it is placed at the junction of old and new Rathgar roads, was designed by Mr. Heiton, of Perth, architect, and built by Messrs. Cockburn and Sons. It is in the decorated Gothic style—cruciform on plan, 90 feet in length by 60 feet in width; 55 feet to apex of roof which is high pitched; tower and steeple attaining a height exceeding 100 feet—and forms a most picturesque feature in the neighbourhood. Stained glass has been liberally diffused throughout. The internal wood-work and fittings are stained and varnished. A school-room is provided in the basement. Messrs. Ross and Murray constructed the heating apparatus.

A new principal entrance is to be erected at Knockdrin Castle, the picturesque seat of Sir Richard Levinge, Bart., M.P. The baronial character of the mansion is to be adhered to in the proposed structure, which will be built on the Mullingar side of the demesne, commanding the main road leading to that important town. A tower of 55 feet in height will form its principal feature. An arched portal, surmounted by crenelated battlements, will be filled with ornamental wrought-iron gates and portcullis, typical of the period of the architecture of the building. It is to be executed in limestone. Mr. M'Curdy, architect.

A terrace of houses is to be commenced immediately to run along the north side of Belgrave-square, Monkstown, the property of Robt. Gray, Esq. Five of the new houses of the terrace on the east side of this square has been completed. Mr. M'Curdy, architect.

It is to be regretted that the very handsome and appropriate front, designed by Mr. Ferguson for Messrs. Rosenthal, Nassau-street, and recently in course of erection, has been partly taken down, and is about to be substituted by a brick and cement exterior, inferior in every respect to that originally in progress. The former would have presented a handsome and well-conceived composition of cut stone and coloured bricks, much after the style of the Alhambra, presenting that most desirable of all decoration—namely, by construction. It is certainly dealing hard with an architect to oblige him to abandon, when partly erected, what is really good, to adopt that which is doubtful at best, and not a reality. It is to be hoped it is not too late for those most interested in it to reconsider and re-erect what was well begun.

NOTE.—Mr. James Donnelly, of Talbot-street, builder, requests us to state with reference to a paragraph that appeared in the DUBLIN BUILDER for 15th ult., to the effect "that the clergymen of Clarendon-street Chapel were causing two houses to be erected in Grafton-street," that it is for Mr. Magrath he is building them. The error seems to have been more in the omission of Mr. Magrath's name as the party who entered into the contract with Mr. Donnelly, than in the substance of the intelligence communicated, for the truth of which we can vouch "to the contrary notwithstanding."

NEWS ITEMS.

Workmen have commenced laying the foundation of the New Grand Opera in Paris. A slab of marble, bearing the date and names of the architect and contractors, has been laid with the first stone.

The members of the Kingstown Building and Benefit Society have presented their founder and treasurer, Mr. Patrick O'Brien, with an address and a valuable gold watch.

The commissioners of patents have recently issued their annual report. By this it appears that the surplus of income over expenditure is estimated at £20,000 per annum.

The Parisians are about erecting a Crystal Palace on the plan of that at Sydenham. A company with a capital of 25,000,000fr. is in course of formation; Sir Joseph Paxton is at the head of the architectural department, Mr. Edwin Clarke is appointed consulting engineer, and Mr. Thomas Brassey is to be the contractor. The building will be erected in the Bois de Boulogne.

It is proposed to erect memorials of the late Prince Consort in Glasgow, Birmingham, Manchester, Malvern, York, Chesterfield, and London. The donations for the latter will most probably, before our journal is in the hands of its readers, exceed £22,000.

Mr. Mark Lemon (editor of *Punch*) is giving a series of lectures in the Gallery of Illustration, and entitled "About London," which are highly spoken of.

Columel Colt has recently died at his native city, Hartford. He was the inventor of the celebrated revolving pistol, the wooden model of which, it is stated, was made on board a vessel while the inventor was on a voyage to Calcutta, in 1829. He established a manufactory which has proved very successful, not only in the making of pistols, but in the manufacture of a revolving rifle, also his invention and which is, at the present time, supposed to be worth nearly five millions of dollars.

The Art Union of London has produced, for distribution among its subscribers this year, an engraving of a very pleasing and popular character; it is the "Raising of the Maypole," by F. Goodall, A.R.A. The task of engraving this elaborate work has been performed by C. W. Sharpe.

In ten years 25,000 inhabited houses have been added to those previously erected in London, and a very large proportion of them are better class houses.

The Lord Lieutenant has fixed Monday, the 8th inst., at twelve o'clock, to receive the deputation on the subject of rebuilding Carlisle-bridge.

The stone-cutters and labourers employed in the Dublin Corporation works have contributed £2 to the fund for the "Distress in the West."

The subscription lists for the Gray testimonial will close immediately.

A grand musical festival, at which Madame Rudersdorff, Miss Elton, Miss Julia Cruise, Mr. Topham, and Mr. Weiss, together with a chorus of 300, assisted, commenced in Cork on the 27th ult.

A handsome monument, nine feet six inches high, is to be erected shortly in Kensal Green Cemetery, in memory of Flexmore, the popular pantomimist.

A respectably attended meeting in furtherance of sanitary reform was held in the rooms of the Tailors' Institute, Clarendon-street, on the 30th ult., Mr. Tarpey, T.C., in the chair. Mr. M'Evoe addressed those present at length, and said that "it had been ascertained that from 1,600 to 2,000 was the rate of excessive mortality in Dublin. The registration system was the alphabet of social and sanitary knowledge. It was the statesman—it was the guide to the statesman, and to the social and political reformer, pointing out to them the proper course they should pursue in applying these measures of sanitary reform, where to apply them, and how to apply them." The chairman also observed that, "both in the dwellings of the poor and in the external condition of its streets, Dublin was in a very defective state. The first duty of the sanitary reformers, however, should be to put the houses of the poor in proper tenable condition. By giving them the means of cleanliness, not only the social and sanitary, but the moral condition of the working classes would be elevated. As a member of the corporation he would take the matter in hands, and although some of the officials might have at first considered him a bore, matters were now going on quietly."

The Dundalk, Derry, and Enniskillen Railway Companies bills have successfully passed the standing orders of the House of Commons.

The Dublin Chemical Society held a meeting on the 23rd ult., and elected annual officers, of whom the Hon. John P. Vereker is President, and Lord Talbot de Malahide, Vice-President.

The price of gas for Warrenpoint has been fixed at 10s. per 1000 cubic feet, and it is doubtful whether any dividend may for some time be declared at that rate.

The Great Northern Railway Company of England have been instituting inquiries in the County Mayo with a view to the greater development of the system.

TUAM CATHEDRALS.

In an architectural and artistic point of view there is only one building in Tuam that possesses the slightest merit—namely, the Roman Catholic Cathedral, a really handsome Gothic structure, which reflects much credit on those by whom it was erected. The Protestant Cathedral of St. Mary's is a small unattractive building. Through the zealous exertions of the vicar, the Rev. Charles Seymour, it is about to be replaced by a beautiful new church, designed by Sir Thomas Deane and Son, the estimated cost of which will be £10,000. Over £3,000 has been already obtained for this purpose, including a grant of £2,000 from the Ecclesiastical Commissioners of Ireland, and donations of £500 from the Bishop, £100 from his Grace the Lord Primate, and £100 from the Vicar of Tuam. It is proposed to raise the remaining £7,000 by a general public subscription. An interesting feature in the present church is the beautiful porch and door-way by which the building is now entered. Dr. Petrie, in his work on the Round Towers of Ireland, remarks that the arch which forms this door-way is, perhaps, "the most magnificent specimen of its kind remaining in Ireland." It has been ascertained by means of an inscription upon an ancient Irish cross that this porch and door-way once formed the chancel and chancel arch of a church built A.D. 1130; and in the design of the new cathedral it has been made an essential point to preserve in all its remaining entirety this most interesting antiquarian and ecclesiastical relic. Writing to the architect on this subject, Dr. Petrie says, "You appear to me to have accomplished this (the preservation of the chancel of the ancient church) with the greatest judgment in the proposed mode of incorporation with the new structure. The destruction, or even the partial preservation, or the want of judgment in the mode of preservation, of such an interesting, and, as I may truly say, unique historical relic of ancient Irish architectural art, would give deep pain to all existing cultivated and patriotic minds, who have become acquainted with its characteristic features and its historic interest, and would surely be regarded by future generations of such minds as a barbarism disgraceful to our times. Nor, in my opinion, would the application of such an epithet be undeserved; for however truly our predecessors might have pleaded ignorance as an excuse for similar Vandalic acts, we can offer no such excuse. For we know the history of this interesting remain—that its highly ornamental arch, which not many years since was believed to be a mere door-way, was truly the *Arcus Triumphalis*, or triumphal arch, which led into the chancel of a church erected at a period when Ireland was generally supposed to have been ignorant of the finer arts of civilization, known to and practised by its neighbouring nations; that this church was beyond doubt a structure of the early part of the twelfth century, and erected by Turlogh O'Connor, the last but one of the native monarchs of Ireland—a vigorous and able prince, who was distinguished eminently for his munificent patronage of the fine arts, as shown by the beautiful processional cross of Tuam, now preserved in the Museum of the Royal Irish Academy, as well as by the great stone cross of Tuam, and this remaining fragment of this beautiful church. And yet further we know that the great feature of this remaining fragment—its chancel arch—though it exhibits in a general way the characteristics of the Romanesque or Anglo-Norman style, its ornamentation is essentially native, or that designated by antiquaries by the term *Opus Hibernicum*, and I know of no other architectural specimen of that style of ornamentation now remaining in Ireland." The building of the new cathedral, which is designed in the earliest style of our Gothic or pointed architecture, will probably be commenced in February, and a good deal of employment will thus be afforded to the people of this town at a time when it will be much needed.—*Saunders*.

LAW NOTES.

Brady v. Hamilton.—The arbitration in this case has been concluded. The plaintiff sought to recover payment for a cantilever gutter, erected on a house, built by him for the defendant at Dundrum, and which the former averred was not in his original contract. The defendant contended that it was included in it, together with other works charged as extras. The plaintiff's claim was reduced to £184, and the costs were divided. Arbitrators, Mr. W. G. Murray and Mr. J. M'Curdy.

The gentleman of the long robe are likely to be engaged in winding up the contract for the new convent at Roscommon, designed by Mr. Neville, C.E., Dundalk, and built by Mr. Gardiner of Carrick-on-Shannon. The trustees of the convent withhold a large balance of the contract, and the amount of a bill of extras, in consequence of the architect refusing to certify as to the proper completion of the works. The builder claims his balance and bill of extras on the ground that the works are fully up to the meaning of the specification, and that the sundry extras, &c., were done by the authority and consent of the superiress and trustee of the convent. Mr. W. G. Murray has been engaged for the trustees, and Mr. J. M'Curdy on behalf of the builder.

COURT OF BANKRUPTCY AND INSOLVENCY.

Henry Pierre, a bankrupt builder and contractor in Enniskillen, sought to pass his final examination.

Judge Berwick declined to pass it until he should have a special balance sheet, showing the manner in which the bankrupt had disposed of certain moneys which he had received within the last six months.

In re Killen and Cunningham.—Counsel on the part of Killen, whose estate will pay 20s. in the pound, applied for liberty to reduce by £80, a proof for over £1000 made last year, for contract work done for the bankrupt by Mr. Dalglish. The motion was grounded on a statement that a "gantry" was not put up as contracted for by Mr. Dalglish at the Victoria and Albert-bridge over the Liffey, for which the bankrupt was the contractor.

Counsel opposed the motion, on the ground that the matter was closed by the proof made long ago to the knowledge of the bankrupt, and without objection, and admitted by the assignees.

Judge Lynch made "no rule" on the motion, without prejudice to any proceeding Mr. Killen might choose to take hereafter. His Lordship also disposed of some other claims in the case.

CARLISLE BRIDGE.—The following gentlemen have been appointed a Permanent Committee, with power to add to their number, and shall be authorised to carry out all arrangements connected with the rebuilding of Carlisle Bridge:—The Right Hon. the Lord Mayor, the High Sheriff, Alderman Reynolds, J.P.; Alderman Roe, D.L.; Dr. Gray, J.P., T.C.; Captain Knox, T.C.; Alderman Campbell, J.P.; Robert G. Collins, George Delany, Edward Kinahan, Alex. Findlater, John Fry, Thomas Mallinson, William Graham, Samuel M'Comas, Alderman Mackey, Richard Kelly, Graham Lemon, Thomas M. Gresham, Valentine O'B. O'Connor, Alderman Carr-ill, Alderman Atkinson, David M'Binney, J.P.; Henry O'Beirne, Esq., T.C.; Lucas A. Treston, Esq., T.C.; George Hoyte, Esq., J.P.

INSURANCE FACTS AND THE CLOSING YEAR.—The insurance statistics of the year reveal some very interesting and instructive insurance facts. During 1861, thirteen companies have ceased to exist; ten have transferred their business; five new ones have been founded, and nineteen projected. Forty-nine are now in Chancery under a winding-up process, seven of these having obtained admission into this select list since our last annual stock-taking. Six companies have changed their places of business, and one branch office has been opened. Four secretaries, two actuaries, and five managers have been appointed to fill up vacancies caused by resignation and otherwise. The chairmen of two insurance companies have been elected M.P.'s by two very large and influential constituencies. Four directors, two managers, and one medical officer have died during the year. One manager, one actuary, and one secretary, being incapacitated by old age or affliction, have retired into private life. Since the year 1844, 599 companies have been projected, 267 founded, 246 have ceased to exist, 52 have opened branch offices, 187 have changed their places of business; 11 amalgamations have been effected; 144 offices have transferred their businesses to other institutions, and 49 have been, or are being, wound up in Chancery. Ninety-three insurance companies have discontinued their fire business, or, in cases where they were only fire offices, they have been dissolved.—*News*.

THE TUNNEL THROUGH MOUNT CENIS.—New machines for cutting the great tunnel through the Alps were tried at Modane some few days ago with perfect success, and by their means the work will advance much more rapidly than hitherto. The length of the tunnel now cut is 1,686 metres, of which 780 are on the French side, and 950 on the Italian side. The road over Mount Cenis is still clear of snow, and the diligences continue to run regularly from Suza to Lanalebourg, as in the fine season; whereas, for many years past the road has been practicable only for sledges from the beginning of November to the end of March.

TENDERS

For pedestal of Croz'er Memorial, Banbridge; W. J. Barre, Architect, Belfast.			
		Without bears.	With bears.
Robinson, Belfast		£287 10	.. £310
M'Cullough, Armagh		.. 275 0	
Fitzpatrick, Belfast		.. 266 0	.. 296
Barnes Armagh		.. 250 0	.. 274
Graham, Belfast (accepted)		.. 240 0	.. 274

The above included 1 ft. 6 in. additional height to plan submitted in competition.

NOTICE.

Such of our Advertising friends as have received accounts from our office, and also Subscribers for current year, will kindly remit the amounts soon as convenient.

Letters relating to subscriptions and agents to be addressed to, and Post-office Orders, &c., to be made in favor of, the Publisher, Mr. PETER ROE, 42, Mabbot-st., Dublin, who will give the proper acknowledgment.

The Dublin Builder.

VOL. IV.—No. 52.

TRADE SOCIETIES.

THE REGULAR OPERATIVE CARPENTERS—*Gloucester-street.*

THIS society is about 150 years old, and since the period of its establishment, has always occupied a prominent position amongst the artizan bodies of "the ancient city of Dublin." Formerly—like many others of their associates in the constructive and utilitarian arts—the members held their meetings under "the open canopy of heaven," in a place familiarly known as the Bishop's fields, and subsequently in a public-house on Summer-hill; but for some years past—thanks to the independent and enterprising spirit that pervades the community—a house of meeting, with comprehensive internal arrangements, and exterior of somewhat pretentious architectural style, has been secured for their use. This establishment is situated in the above-named street, to which it presents a frontage of about 40 feet, with depth of 300 feet, and was originally planned by the late Mr. George Papworth, architect; the decorative portions being afterwards added, according to a design by one of the body, Mr. Conroy. The cost of erection exceeded £1,800, and was borne by subscriptions. When we contrast the social and financial position of the operative carpenter at the present day with what it was some seventy years ago, the balance is very considerably in favour of the present generation, the wages now averaging 30s. per week, whereas, at the period alluded to, it was only *sixteen*. The first advance towards increased scale of wages took place about the year 1790, at the building of our Custom-house by Mr. Baker, under Mr. Gandon, architect, when the body struck and obtained, through the intervention of the last-named gentleman, *two shillings* per week extra; subsequent concessions being made at various periods by the employers until the figure above quoted was ultimately reached. Whether circumstances of increased demand for labour, or the state of the money market, &c., &c., may justify a *further* increase hereafter, we, of course, cannot offer an opinion; but we may state, that should they prove so, and that, by *mutual* consent of employers and employed, such should take place, we will be happy to offer our congratulations thereon; as the artizan and his family will never be better housed, fed, and supplied with the wherewith to minister to his necessities, and his *reasonable* luxuries, than we wish him. Enquiring now into the constitution of the important body under notice, we find that it comprises some 650 members, who contribute an average annual payment of 12s. into the general fund—representing an income close on £400 a year—and is conducted by a committee and a secretary (Mr. Patrick McDonnell); Frederick Darley, Esq., architect, being the patron. Connected with this body is a provident institution for "supporting the infirm, burying the dead, providing for the widow, and educating and apprenticing the orphan;" and for the carrying out of some of these most laudable objects the arrangements of the house which is popularly known as "the Carpenters' Asylum" were designed. It seems, however, that it has not been applied to these intended purposes, inasmuch as that the greater proportion of—if not all—the relief afforded by the body to infirm members is furnished in their own homes, and that excepting the apartments required for committee and general meetings and for caretaker, these extensive premises are unoccupied; but if entitled to suggest, we would certainly convey an opinion as to the advisability of their appropriation as a news-room or library, and invention model-room respectively, whereby both recreation and instruction might be imparted. The prudence of this would certainly suggest consideration, as the overplus capital sunk in a building of unnecessary extent, gives no return; but of this—we freely concede—the intelligent committee members are themselves best judges, at least once attention has been directed thereto. The insignia of the body displayed on a banner in the general meeting room (which is 40 feet by 22 feet), comprises a shield of Elizabethan character, divided into four compartments, squares and compasses occupying the two upper; a pair of hammers crossed, with trowels above and below, in one of the lower, and a cross in the other. Underneath is the appropriate motto "*Sis vraz et ne timeas*"—"Be just and fear not." At this portion of our subject we may notice, that the body has

recently been presented by Sir Thomas Deane, architect, with a handsome silver-capped mace, bearing at top the impression engraved hereunder, and the following inscription around the neck:—

"THIS ANCIENT MACE OF
A GUILD OF CARPENTERS
IS PRESENTED BY
SIR THOMAS DEANE
ARCHITECT
TO THE BODY OF THE REGULAR
OPERATIVE HOUSE CARPENTERS
OF
THE CITY OF DUBLIN
1862."



SKETCHES ON THE MACE.

Such a tribute of respect and remembrance by so eminent a member of the architectural profession, has elicited the warmest feelings of gratitude from the recipients.

The rules of this body, as far as they relate to its internal government and the arrangement of its elections, periodical meetings, &c., offer no subjects for particular comment by us; but there are a few referring to other matters, which call for some favourable observation. Rule xix. says, "that any member found to *injure* his fellow workman, be fined the sum of 10s., and *continuing* to do so, be fined one guinea." This is very judiciously introduced, and, we have no doubt, has a most wholesome effect in checking the probable results which might otherwise arise from those personal differences and jealousies, occasionally sure to exist in every community, however well constituted. To rule xxviii. we would also direct attention, as one calculated to elevate the body in the social scale, and at least present, in an unmistakeable light, the consequences of indulgence in that unfortunate and too general besetting sin which makes the rich man poor, and, to use a popular phrase, keeps the poor man's "nose to the grinding stone" all the days of his life. It says "that any member or members of this community who transgress so far through *intoxication* or any other misconduct, as to endanger the loss of any employment to the community, it shall be at all times imperative on the council to *take that man or men out of the employment, and replace him or them with men that they think most proper.*" By rule xxix. it is provided, that "members over 50 years of age shall be at liberty to work for what wages his shopmates and the council *may think him capable of earning*; and on and after the age of 60, if found worthy, shall receive a free ticket, and dying at any age, and of good repute, and not being more than 18 months in arrear, his nearest relatives will be entitled to the sum of £3 sterling, and not being more than two years in arrears, the sum of £1 10s."

Whatever may be the opinions for and against respectively "*a uniform rate of wages*," and we are not desirous to open up that question, the first paragraph in the above quotation at least releases the employer from its unconditional observance, once the carpenter of this community has passed the meridian of life, and his capacity may reasonably be presumed to be on the decline. But we believe, that, at the present time, there are very many actually past that period, whom the council "thing capable of earning"—and who fully prove themselves to be so—the full rate of wages; and long may they continue so, and long may their brethren of the craft zealously and effectually pursue their honourable labour!

In our next No.—and pursuing this series, which we desire to render as complete as possible—we shall have more to say of "*the carpenter*," to whom, by the way, we trust the opening of the building season will bring more constant employment than we regret to find has been recently enjoyed.

TUAM CATHEDRAL.

RECENTLY we gave a complete description of the works at present in progress at Tuam Cathedral, under the direction of Messrs. Deane, architects, and herewith we enclose a supplementary illustrated sheet produced by a new process at the anastatic press, Ipswich.

PROFESSOR S. SMIRKE'S LECTURE ON ARCHITECTURE
AT THE ROYAL ACADEMY.—LECTURE I.

(Continued from page 22.)

BRAMANTE called in the aid of sculpture with that chariness and caution which plainly indicated how highly he appreciated its noble attributes and fitting application, and as if he feared to vulgarise it by too frequent a use of it, or by excess of any kind. Yet, highly as he appreciated sculpture, he never permitted it to encroach upon the proper limits of his own special art. Sculpture was used by him as an honored accessory, well calculated to stamp a moral value on work, and to give it a grace beyond the reach of mere architecture.

Borromini, on the other hand, permitted sculpture to dominate over the main object of his art without restraint; his whole building was literally sculpturesque, and his masonry was left to the humbler duty of forming a mere vehicle for the consolidation of some fantastic piece of clay modelling. Such had been the downward progress of architecture during the period to which I have been adverting.

It must not, however, be supposed that the transition was sudden, or even rapid. The activity and energy of the sixteenth century were wonderful, and led to perpetual changes, and were constantly giving birth to novelties. New schools were founded, and eminent masters appeared in rapid succession, and of most opposite characters—Sansovino, with his superabundant wealth of sculptural resources; Palladio, with a moderation and purity of feeling far beyond his fellows; Michael Angelo, whose length of life enabled him to see out most of the brightest lights of Italy, although he was himself a fellow-labourer with some of the earliest and ablest masters of the great Italian Renaissance. Still, though the course of architecture was an onward course, yet it was also a descending course. The art lost its dignity, and became frivolous and trifling. Every part of a building seemed to be, as it were, in restless movement; curved lines were broken and inverted; straight lines were perpetually interrupted or diverted, and all breadth was frittered away by a multitude of lights and shadows.

It is worthy of note how great a sympathy has always seemed to exist between our art and that of the sculptor. Whether dignified and severe, noble or mean, natural or conventional, grand or grotesque, these two sister arts seem ever to have proceeded hand in hand; for ever sharing the same fate: rising together into greatness and sublimity, and together sinking into painful imbecility. Without going too far back into the history of art (although in remotest times the sympathy between the two arts was eminently conspicuous) we shall find the observation hold good in Medieval art. The culminating period of ecclesiastical architecture was precisely that which has been eulogised by our Flaxman as distinguished by high sculptural excellence. The quattro-centist introducers of modern art in both these branches shared like feelings, and were remarkable for like excellences. The sculpture of Donatello, like the architecture of Alberti, was alike vigorous and original, and full of delicacy of feeling; these high qualities being in both arts somewhat qualified, it is true, by a certain degree of hardness and rigidity. In Michael Angelo we find the same colossal and masculine breadth, whether we regard the examples he has left us of his sculpture or of his architecture.

Then coming down to the epoch that more particularly engages our attention this evening, we shall find the same debasement pervading the two arts. I have already said that one of the marked characteristics of the architecture of the seventeenth century was that of restless movement; so also the sculpture of the seventeenth century exhibits, in an especial manner, the absence of that tranquil dignity which is particularly becoming in sculpture, especially when applied as an accessory to architecture. A want of repose is almost equally offensive in both arts. The eye is fatigued and the attention distracted by an excessive flutter in the details, whether we contemplate a building or a group of sculpture. Bernini set the example, but Borromini went far beyond him in this vicious treatment of the sculptural accessories of their respective buildings. Indeed, one of the most repulsive faults of sculpture at this degenerate period was its utter want of repose, and the inordinate love of representing agitated drapery.

It is said of Bernini, by Milizia, that, although he was himself far from a pattern of sobriety in this respect, he yet knew enough of his art to condemn the fault in others. Remarkings on one occasion the extreme agitation of Sta. Veronica's clothing under the dome of St. Peter's, he sarcastically inquired of the sculptor from whence the wind came that so seriously disturbed the Virgin Saint's drapery, seeing that she stood protected within the walls of the edifice. The sculptor, fortunately for him, had an answer that effectually disconcerted the critic. "The wind," he replied, "obviously came through the serious fissures in the masonry of the dome, occasioned by the critic's (Bernini's) want of skill in destroying the stability of the piers of that dome;" Bernini having shortly before somewhat rashly interfered with Michel Angelo's piers, by the insertion of colossal niches ex avated out of the substance of those piers. Such were the mutual recriminations of these two most eminent artists, who con-

tributed so largely to the degradation of their art. I am confident that I am using no extravagant or inordinate expressions when I designate the architectural sculpture of the seventeenth century, in its treatment and mode of introduction, as ridiculous and absurd. Their sculpture may probably have been designed with boldness and vigour, and executed often with a masterly dexterity; certainly we cannot justly charge it with tameness or insipidity. Its faults were, indeed, exactly the reverse. There is a grotesque energy, a violence of gesture, which is, perhaps, very true to nature, if we seek nature in the wine shops of the Campagna, or among the Lazzaroni of the Chiaja; but the united voices of all cultivated artists will concur in condemning that style of nature as unfit for the study and imitation of sculptors.

A painter may, with perfect propriety, impart whatever degree of violent action his subject may demand; his pencil undertakes to realise to the eye actual scenes, and if intense action is to be represented, he is most successful who best realises on the canvas that intensity. The case is, as it appears to me, far otherwise with the sculptors' art, at least when it is applied as the accessory embellishment of architecture. Statues in niches, or on balustrades, or otherwise fringing the sky-line of a building, must, I should think, be subdued, both in attitude and in treatment.

Such, however, as I have remarked, was most certainly not the opinion or the practice of the sculptors of the seventeenth century. M. Angelo had, in the palmy days of art, made his Moses look like no common piece of humanity, but rather like a sculptured fragment of rock, in solemn repose and instinct with supernatural dignity, whilst the Patriarch, when treated in the 'naturalistic' school of the degenerate period I now refer to, never failed to be represented as a remarkably active, impetuous old man, admirable chiefly for the violent development of his muscles—throwing himself into very unseemly attitudes, and striking the rock with his rod more like an excavator than a patriarch. Such also is the general character of their architectural sculpture.

The Apostles and Fathers of the Church were men upon whom we should be taught to look with reverence by the quiet dignity of their mien, and by that deep intellectual abstraction which is best represented by a steady composure of manner and general absence of energetic action. But where are we to seek for such examples of architectural sculpture from the chisels of the eminent masters of the fantastical school of this period? On the contrary, the Holy Fathers are made to look like posture-masters performing for the public diversion, and are seen on their pedestals throwing their limbs about and ruffling their drapery in a way utterly subversive of that personal dignity, which, as I have remarked, seems to appertain to their character.

It is not to be wondered at that when taste in sculpture had reached this bathos, our own art should have been dragged down with it to the same level. Indeed, there is, I think, good reason to apprehend that far too intimate a union had unhappily subsisted between those two sister arts.

So long as a fine taste and high æsthetic feeling prevailed, no danger came, or could come, from the cultivation of both these arts by one mind—indeed, it was the glory of our art to be intimately allied to the sister arts. But when that truth of feeling and nicety of judgment had passed away which taught those who practised both arts to discriminate well between the special requirements of each, a fusion was the result mischievous to both, but which was more particularly injurious to our art, for a sculpturesque treatment of architecture is likely to lead to far graver errors than an architectural treatment of sculpture. The latter may be liable to become cold, rigid, formal, and even unnatural; but the former is sure to become, as indeed it did become, insufferably lax and vicious, violating all the properties of our staid and sober art—an art which can never indulge in capricious without great risk to character and certain loss of dignity.

To say the truth, without however meaning the slightest disparagement of the sister art, I would express my belief that most of the errors of architecture in its decadence may be traced to the injurious influence that sculpture exercised over our art. The habit of a sculptor's mind would naturally lead him to exercise his inventive faculties in designing and modelling out of the plastic material with which he is most familiar, forms and combinations of forms that would produce picturesque groups, and an ornamental, or, at least pleasing arrangement of lines, and of chiaroscuro, and when he comes to execute his conceptions in stone or marble, he would, of course, seek to construct his work, if not out of a single block, at all events in as few as possible; because joints, and especially led-joints, he is, of course, always anxious to avoid or conceal. All the proprieties, therefore, of *masonry construction*—the sound bounding together, and truthful bedding of stones; the avoidance of false bearings, and all such like considerations, are entirely foreign to his art, and are, in fact, subjects which never or rarely demand his study, nor even need his attention as a sculptor. Hence it is, probably, that we find that the sculptor of the seventeenth century, when he produced works of architecture, was very prone to treat his buildings,

however large, rather like magnified copies of small sculptural models than as purely architectural works—that is to say, works built up on the true principles and according to the known rules of good architectural construction.

When we call to mind the practice so prevalent and so popular at the period of which I treat, of erecting in churches huge architectural pageants of a most ostentatious character, but of very slight and temporary materials and construction, as chapelles ardentes and catafalcos, when the funeral obsequies of some high ecclesiastical or political dignity were performed, it seems not unlikely that this prevalent fashion on which, as it is well known, artists of highest eminence were often engaged, conducted to, or at least accelerated, that degraded character of architecture which we so much deplore, and which so injuriously influenced our art in subsequent times.

Those vast architectural shams, the catafalcos, were put together by the dimaist contrivances; there was, of course, a lavish superfluity of statuary, for it was of mere lath and plaster, and the drapery was often—I believe usually—real linen steeped in glue and whitening to give it a fictitious rigidity, and something of the superficial aspect of stonework.

By such like artifices it became easy to “body forth” for a day’s ceremony, some “baseless fabric of a vision,” highly picturesque and imposing, perhaps—indeed, when treated by men of genius and ability, very striking, and even magnificent; for, as I have said, men of the highest rank in art were not, in those days, averse to lend themselves to these ephemeral productions.

In presenting such unreal mockeries to the view, masonic proprieties were neither required nor regarded. The boldest and least fastidious practitioners would probably indulge and amuse their fancies in realising the semblance of impossible structures; and as it was just as easy and inexpensive out of the lath and plaster, or clay and stucco in which they worked, to present to the devout and admiring congregation a galaxy of clouds and glories, and to group together all the cardinal virtues, and the whole hierarchy of saints, as it was to exhibit the most gorgeous domes and the richest colonnades, it is not to be wondered at that the productions of the two arts got irretrievably intermingled and confounded, as well as corrupted.

That such a practice or fashion, prevailing among a people of strong æsthetic feeling, but of lax principle of taste (and such were the Italian people of the seventeenth century) should lead to a similar style of designing in works of a more permanent character, seems natural and almost inevitable.

First in interior architectural design we should expect to find, what in truth we do find, that altar-pieces, baldachins and monuments, became strange medleys of the two arts, although worked out, perhaps, in real marble and brass; and then the vicious tendency would necessarily spread itself to exterior architecture.

(To be continued.)

ON THE CONSERVATION OF ANCIENT ARCHITECTURAL MONUMENTS AND REMAINS.*

(Continued from page 23.)

Nothing can be more delightful and instructive than this class of investigation. One sometimes finds objects of the greatest interest and unfolds designs of the greatest beauty and originality, of which not a trace was before visible. Were it not for this, the work of restoration would be almost unmitigatedly painful, from having constantly to meddle with and to replace genuine, but hopelessly decayed, work; these discoveries, however, and the beauties they unfold, afford a delightful and consolatory compensation.

How doubly distressing, then, is it to see evidences of this kind discovered, but ignored and destroyed without one hint being taken from them, as is too often the case.

After animadverting, however, upon our own misdeeds, I think I may be excused in speaking somewhat plainly as to the fearful loss of authentic work of the most precious, indeed, of the most inestimable value, which is going throughout the length and breadth of that country which boasts itself to have been the birthplace of Pointed architecture, and where, if that high claim can be established, it follows as a necessary consequence that every original fragment, and every authentic detail, or—more correctly speaking—the originality and the authenticity of every fragment and of every detail, should be guarded with a jealousy proportioned to their value as the most trustworthy and the most genuine illustrations of the rise and development of that wonderful style of art.

It is perfectly inexplicable to me how the very same persons can at one time bring cogent arguments to prove that their country was the nursing mother of Medieval art, and at the next should deliberately, and without necessity, take down from her noblest architectural monuments original details of the most exquisite description which imagination can picture, and which have suffered compara-

tively little from time, and replace them by modern copies. Yet this is the course of proceeding going on from one end of France to the other—and that not by one architect in particular, but, in a greater or less degree, by all the architects who are engaged in the restoration of the ancient monuments of France.

In that country we have to applaud the generosity of the Government in undertaking on so munificent a scale the restoration of its ancient architectural remains. We have not, as sometimes with ourselves, to lament the employment of persons of dubious capability; for the works are generally in the hands of men of the greatest eminence and of undoubted skill and knowledge; nor have we to complain of any want of artistic power in the carrying out of the works, for in this we must acknowledge ourselves to be in many cases surpassed. What we have to lament, to deprecate, and to protest against is, that inexplicable absence of appreciation of the value of the authenticity and of the actual *bona fide* genuineness of old work, which leads them to reject without scruple of remorse the most charming original work for some mere trifling defect, and to feel perfectly satisfied with a copy which, however skillful, must be lifeless from the very fact of its being a copy, and which, even if as good as the original, must be utterly devoid of the interest and historical value which attached to it. The extent of which this feeling, and the course which results from it, extends itself, is as lamentable as it is inexplicable, and absolutely threatens to replace half of the ancient monuments of the country by mere copies of them. True it is that these copies are admirable in execution, and careful and studious in their correctness; but who cares for a copy if he can get the original? or who will ever look at the details of the French cathedrals as exponents of Medieval art, when they know them to have been executed in the nineteenth century? And it is not the examples of Pointed architecture alone which are being thus tampered with, but even the curious Byzantine remains in southern France and the classic monuments at Nismes. When I was preparing, some time since, a lecture for the Royal Academy on the rise of Pointed architecture, I had a great desire to see a drawing of any capitals which might exist at Perigueux, and on making inquiry of a friend who had just been there, he said, “Oh! I could have got you one if I had known, for the old ones were lying about among old materials.” One hears a story of an American who, after looking at the new works always going on at the Coliseum, remarked, with very just irony, “It’ll be a very fine building when it’s finished.” And I learn from our excellent secretary, Mr. Lewis, that the very same thing is going on now at the Amphitheatre at Nismes!

Even Carcassonne, so famous and so interesting as a city—almost deserted before the close of the middle ages and consequently a wonderful genuine specimen of a Medieval city—is, as I learn from Mr. Lewis, being renewed and made into a (no doubt very learned) model of that which it was the dilapidated original!

A visit to the Hotel Cluny affords a practical commentary upon this system of restoration by renewal. We see there capitals from the Sainte Chapelle of an exquisite subtlety of conception and sculpture—such as to bid defiance to any one who would think of transferring their spirit to a copy—and yet thrown aside and laid on the grass-plot, in all weathers, though to the casual observer almost as perfect as if new; one sees there the real angels whose counterfeits blow the trumpets of the Resurrection over the great portal of Notre Dame; one sees the central pillar of one of the same portals looking nearly as well conditioned as its modern supplanter; one sees also balusters from the parapets of the Sainte Chapelle as good as new; and many other exquisite details rejected from the restored edifices—one knows not why. The stone-yards hear many cathedrals tell the same story. Indeed wherever a great restoration is going on, you may see the genuine old details, often scarcely corroded by time, lying in rejected and neglected heaps hard by.

Now let me ask, in the name of good sense and good feeling, why the great learning, skill, and judgment of the (often illustrious) architect to these works is not rather directed to the conservation *in situ* of every fragment of the noble architecture which they understand so thoroughly, rather than to its supplantment to make way for mere copies which, however admirable, possess no real value as genuine exponents of the style? If they would take the contrary course, I can aver without fear of contradiction, from the talent and learning they display, that their works would be worthy objects of the pride of their own countrymen and of the gratitude and admiration of every lover of Medieval art, instead of being, as now, causes of regret and disappointment to all. But, it may be asked, what business is this of ours? Why do we not correct our own errors, and leave architects of other countries to do as they like? I reply, that the French architects and art-historians, by showing (whether we fully admit it or no) that theirs is the mother-country of Gothic architecture, have thereby made its productions the property of Europe and the world; and that, on their own showing, all lovers of Gothic architecture have an almost equal claim upon them for their authenticity and their conservation.

I have dwelt so long upon the principal heads of my subject that I must but slightly touch upon that which remains: I mean the pre-

* From a paper by G. G. Scott, Esq., before the Royal Institute of British Architects.

servation of the miscellaneous remnants of antiquity, which form my third class.

These are, more than any other, subjected to the constant inroads of Vandalism. Even the reverend conservators of our cathedrals care little for the fragmentary remains by which they are surrounded, and often rather wonder at the weakness of those who lift up their voices in their favour. The very same man who takes an enlightened interest in the preservation of every portion of the church cannot be brought to care about the equally interesting though simpler structures, whose vestiges are intermingled with their own residentiary houses, and would have no scruple in destroying the most interesting antiquities to provide for some passing matter of convenience.

At Worcester it is only a few months since the ancient Guestern Hall was threatened with destruction. At Ely the huge Abbey Barn was destroyed only a few years back, and nearly everywhere the same spirit may be found to be at work. It is the duty of an Institute like this to protest against it, as they have lately to their honor done in several kindred cases.

One can hardly expect better things of a town council, when chapters of cathedrals set the example; but one must, in passing, protest against the deliberate barbarism which has within a few years destroyed the curious old town-halls of Hereford and Leominster.

Our country villages, and the country itself, are full of small fragments of ancient architecture, often not of very early date, but of most valuable character, and which are every day threatened by the hand of innovation. I refer not only to works of high antiquity, but to timber houses, old brick (or other) chimney-shafts, old gable-houses of stone or brick, and a thousand other fragments of old buildings, which add so much to the character of our villages, &c., and are also so suggestive for rural architecture. These ought to be jealously preserved and watched by those who have it in their power to do so. Village and churchyard crosses, the remains of old domestic architecture in our towns and cities, old manor-houses, hospitals, schools, colleges, &c., &c., and a thousand other classes of building, demand equal care; and, last of all, I would mention old *bridges*, which are far more numerous than one would suppose, and which are less seen than most classes of antiquities, from the fact that we pass over, and, therefore, cannot get a view of them. These have very frequently been preserved intact on one side, and widened on the other; a process one cannot object to, as the roadway which they provide is usually too narrow for our present uses. Though not great engineering works, they have a noble character, and occasionally attain to considerable span; as in the case of one at Durham, which approaches 100 feet. Amusingly enough, a modern engineer, in widening it by an arch of the same span has failed in making his work stand so well as the old one.

I have, however, made my paper far too long, and must sum up briefly, as follows:—

I. Our old architectural monuments are of the utmost value and interest to us as Englishmen and as architects, and their conservation is a matter of vital importance.

II. What with neglect, Vandalism, natural decay, and ill-judged restorations, the existence, integrity, or authenticity of these invaluable remains is threatened from all sides, and fearful inroads upon them are every year being made.

And finally, it is the paramount duty of an institution such as ours—the only one of the permanent character by which architecture is represented—to take the initiative in laying down, in conjunction with other architectural and antiquarian societies, a code of rules for the treatment of buildings requiring restoration, and to take such measures as their united wisdom may suggest to promote the true, faithful, and authentic conservation of these monuments and remains.

In conclusion, then, I beg to propose that a standing committee be appointed for this purpose, and that they be empowered to act in conjunction with, and to communicate with other societies, with a view to secure their co-operation in carrying out this most important object.

ON ENTERING ARCHITECTURAL PRACTICE.

(Continued from page 26.)

Again, to try to enter into, not to overrule your client's views, so far as he has formed any, of the building he requires. And in points where you and he entirely differ, inasmuch as the cause of that difference will be, I presume, that you are right and he is wrong (is it not always so?). Just go to work, not to oppose him, but to convince him—not to overrule his wish, but to change it. You will succeed much oftener than you suppose, even where at first you think there is no hope. If individuals or committees think well enough of you to entrust you with a work which is to them of importance, they will not lightly go against the repeated expressions of your own opinion, temperately but decidedly urged.

Wherever you can, adopt the plans your clients propose (for you often will have a ground-plan, sometimes a very good one, given you by your employers), and throughout hold yourself bound to fulfil their intentions as far as possible, but on the other hand preserve the most manly independence towards them where necessary. Remember that, as architect to a building, it is your duty to act impartially to your employer on the one hand, and the contractor on the other. Absolutely refuse to permit anything unfair or unjust, and take care not to sanction anything that is unjust to yourself or the other members of the profession, such as, for example, working below the usual commission, or under circumstances manifestly unfair to your brethren.

Remember to be punctilious to a fault in all that affects the honour of the profession; abhor and avoid all commissions, fees, bribes, and other back door iniquities, and above all things never take up work that has been taken out of another professional man's hands, without first yourself seeing him and satisfying yourself that all is fair and above board.

In several particulars the welfare of the profession may be said to be at stake, whenever any member of it goes wrong. I hold, therefore, that in your difficulties you have a right to the advice and assistance of almost any of your brethren—certainly of your friends; and I feel sure that any member of this association would readily place at the disposal of any other member, even if a personal stranger, any information or advice he can afford him. Such assistance is especially necessary as to fees and commission, a subject upon which many at commencing practice know little or nothing.

The best general advice for you as to remuneration is this:—Recognise that you are likely to have to do more for your money than your elders, but chiefly in the way of making up for want of experience by extra labor, of doing with your own hands that which in a large office is the work of a clerk, so that you will be paid the same sum for attaining the same result. You ought to stand out for the regular commission on works usually paid for by commission, and the regular fees on works usually paid for by fees. In all other cases you ought to book your time, as a guide to you in arranging your charges; but you ought, I think, to book the time when you are doing principal's work, and that when you are tracing, copying, or running errands for yourself, separately, and money them out at separate rates.

You will, I hope, keep a good diary, and early commence to keep a simple but sufficient set of books. Provide good forms for certificates, accounts, and all other formal documents, and keep all your transactions in regular form as possible.

In dealing with a committee, let me advise you to get them to appoint some one person (who will ordinarily be the secretary), through whom alone orders are to be communicated to you, or else you will be liable to get the wishes of single members expressed to you in a way which the committee would not in all cases sanction, and will be in great danger of getting into trouble.

Some of your first commissions will probably perplex you, as to how on earth you are to do them. For instance—you will have, perhaps, been studying the higher branches of your profession, and have started hoping your first work may at least be to restore a parish church, if not a cathedral; when in walks a solicitor and asks you to make a specification for dilapidations at a public-house in Vinegar-yard, or some such elegant locality; thrusts a lease and a rusty key into your hands, and is off before you have quite gained self-possession enough to remember that you have never done dilapidations in your life. Under such circumstances you may do well to remember a general rule laid down by many people "never refuse business." I thoroughly endorse this rule, with the explanation that by business you mean your own business—namely, such as you can honestly undertake; and to honestly undertake business it is not, I think, necessary that at the moment you engage in it you should be personally competent to work out all the details of it so long as you know the general principles of it, and know how it ought to be done. Work that you know less of than this you had better decline, and in work that you only know so well as this you had better get help from those more familiar than yourself with details.

Try to acquire, before you actually start, some notion of every branch that an architect's practice embraces, and to get a good knowledge of men capable of doing work, and then, I think, you need not refuse any work which you yourself understand, though you cannot execute it, provided you are sure you can get the details perfectly well done for you, and under your own eye. As, however, under such circumstances you become personally responsible for another's work, I would advise you always to go through the whole business, every inch of it, with the person you employ, so as to know all that has been done, and to be able to speak to all if you are asked. I would also advise you to get for such services the very best assistance procurable.

If, however, a commission be proposed to you of which you really understand nothing, so that you would really have to delegate it entirely, take no share in the work, and then be entirely responsible

for the results. I say at once, the less you have to do with it the better.

Let me advise you, however, as far as possible, whenever you delegate work to delegate responsibility also, and in such cases for some years to come, always regardless of any other consideration, to go to the best sources known. If, for instance, you have to recommend a surveyor, or tradesman, &c., let me tell you, harsh as it may seem, that you, as a young man, unknown and untried yourself, cannot afford, and ought not to venture, to recommend any one except a man of the highest standing, and having recommended him, leave him to bear the blame, or take the credit, as the work turns out. The chances are that he will do the work well, and then you will get the credit, which you really deserve, of recommending a good man; but if he does it badly, you can say to your client, and say with truth, "that man stands at the head of his profession, or of his trade, and I could not do better for you than I did in employing him."

This rule applies to builders, gas-fitters, hot-water apparatus makers—in fact, all tradesmen; and to surveyors, land-surveyors, and clerks of works.

You, as a beginner, had better never venture to recommend to a client another beginner, however much you may wish to befriend him; the time for doing that will come as you yourself gain standing; but at first your duty is alike for the client's sake and your own, to supplement your own inexperience by as much experience and as high a character as possible in the people you recommend.

I would again advise you in your early works to adhere as much as possible to regular and formal modes of procedure, such as you have seen carried on in offices where you may have been, although you may not be quite aware of the force of such methods. It may save your client from litigation and you from ruin, if you stand out for having a completed set of drawings, and a specification signed, before an inch of ground is turned; and in that specification you embody the best and most complete code of general clauses you can lay hands upon.

Do not do solicitor's work yourself, and do not do without it. If you get a work to build of some importance, have a contract, and resist all your client's endeavours to make you draw it yourself, and if your client will not employ a solicitor, then let the agreement stand upon an interchange of letters, but do not be tempted into thinking you are safe in trying to manufacture a legal document.

And, lastly, having introduced a mention of the legal profession, let me advise you, if you resort to them in time of peace, to keep clear of them in time of war; keep your client out of law, if you possibly can, and exert yourself to the very utmost to keep him not only out of law, but out of all other annoyance. Let your foresight, if possible, make provision enough to spare him that terrible infliction, a bill of extras, and let the testimony borne to you at the end of every transaction be that you have been inflexibly upright, that you have proved yourself thoroughly master of your profession, that you spared no pains, and that you have never lost either your head or your temper.

I have now but one or two words to add, and I have left them to the very last, because they relate to a subject the most important of anything; that has to do with your success in life, and to which, consequently, I wished to assign the crowning position.

I have told you something of what you must do for yourselves, and I hope that you will all do it, and will, as a consequence, feel a self-respect which shall place you above all meanness, and a self-reliance which shall make you rise superior to all difficulties.

I have told you something of what your friends must do for you, and I trust you will all experience both the support of your professional brethren and the help of your personal connections, and that the thought of how much you owe to others will make you anxious to be ever helpful to the many of those whom you will encounter on your onward path whom you may in turn have an opportunity of helping.

I should, however, be guilty at once of misleading you, and of failing to express my personal convictions, if I closed here, and led you to believe that any exertions of your own, however able and however active, or any support from your friends, however influential and however zealous, could of themselves suffice to ensure you success in practice or in life. It has not been in my own case, and it will not be in yours, the fact that these efforts, or any efforts such as these, will overrule the many circumstances entirely beyond our control, which may concur to produce or to prevent success, and with regard to which we must seek aid higher than human.

I have already spoken to you of your architectural fortunes under the figure of a building. Let me then conclude by reverting to that figure, and by quoting the words of inspiration, words true, not only of your own house, but of every edifice, the safe completion of which will contribute to your success—namely, "Except the Lord build the house, they labour in vain that build it."

About 4,500 men are at present employed in completing the International Exhibition building.

BALLINA.

WE had something to say in a former number about this town and others adjoining, but the following from the graphic pen of *Saunders' News-Letter* correspondent, who has been making a survey of the western districts, will be read with interest:—

Ballina is the largest and best town in Mayo, though its geographical position precludes it from having the honour of being the county town—an advantage which Castlebar, by virtue of its central situation, possesses. It is situated on the banks of the river Moy, which at this point is wider than the Liffey at Dublin, with an ever-flowing tide and no mud deposits, the bed of the river consisting of gravel and flags. The water power comparatively going to waste at Ballina would be worth a million a year in Manchester or any other great manufacturing district. The Town Commissioners have done much during the last six years to improve the appearance of the streets, and they are, I believe, contemplating a water supply, which would be a great benefit to all the inhabitants. The pathway is well flagged, the town is well lighted with gas, several of the large and flourishing-looking shops have plate-glass windows, and altogether Ballina, in the size and respectability of its houses, and the appearance of prosperity amongst its traders, possesses a decided superiority over the other towns of Mayo. At the same time it must be observed that during the past year its general credit and trade have suffered a heavy blow by the failure of Merrick and Co., who brought down other establishments with them in their fall. It has been proposed to construct a harbour either at Killala or Moyne, where deep waters and good anchorage are always to be found, and to run a tramway from Ballina to either of the places which may be selected, a distance of about five or six miles. Colonel Gore resides at Belleek Abbey, a large and handsome edifice, situated about a mile from the town; and by constant attention to his property fulfils the duties of a resident country gentleman. In his own demesne Colonel Gore is carrying out rather extensive works, and thereby giving a good deal of employment to artisans and labourers. Amongst other things he is carrying water from a considerable distance into his farm steading, for the purpose of working by water-power threshing, sawing, and grinding machines. He has made two fine farms—one of 400, the other of 200 acres—which have been let on leases of twenty-one years to Scotchmen, who, although they have been in possession about three years only, and already they have effected a vast improvement in the land, having drained it to a great extent, divided the fields by quickset hedges, levelled old fences, and deepened shallow spots. The change which they have wrought in the appearance of the land is at once observed by comparing their carefully-tilled and well-fenced fields with the adjoining holdings of the small tenants, which show neglect, indolence, and bad cultivation. The land comprised in these beautiful farms was once in exactly the same neglected and impoverished condition. Two farm steadings have been built in the most permanent manner, and each is supplied with an eight-horse water-power to turn a wheel that drives machinery for threshing, &c., all of which are of the best character, and were manufactured by Mr. Gray, of Uddingstone, whose name is so frequently heard at our agricultural shows. The expense of these works is borne jointly by Colonel Gore and the tenants. On the larger farm there is a steading for upwards of 100 head of cattle. It is very difficult to induce the small holders, who have been accustomed all their lives to an indolent, slovenly, and imperfect system of agriculture, to adopt improved methods; and I am not surprised that some landlords who were anxious to encourage their tenants should have become disheartened by the failure of their efforts to effect a change for the better in the habits and customs of the people. I believe that the much-desired improvement can be ultimately carried out, though by slow degrees; but to this end it is essential that the tenant should have security of tenure.

INSTITUTION OF ENGINEERS IN SCOTLAND.—At the second meeting of the session, which has recently taken place, a paper was read by Mr. Allan on "An improved duplex spring buffer and draw springs for railway plant," and on "improved roof lamps for railway carriages," after which Mr. E. Hunt gave a description of a German veneer-cutting machine, in which a straight saw blade is used, being stretched in a frame of the ordinary construction, consisting of a stile with cross-heads at each end and a back tension rod, and the frame is made to reciprocate by a crank and connecting rod, the crank shaft being carried upon a separate block, situated to one side.

WAR-OFFICE CLERKSHIPS.—Sixteen vacancies will shortly be filled up in the War-office. These appointments are, it is understood, to be conferred solely upon temporary clerks already engaged in the department; such among their number as have been unsuccessful candidates in competitive examinations, but who have displayed the ordinary degree of proficiency demanded for a "pass," to be placed on the establishment forthwith.—*Civil Service Gazette*.

CRYSTAL PALACE (SYDENHAM) ARCHITECTURE.

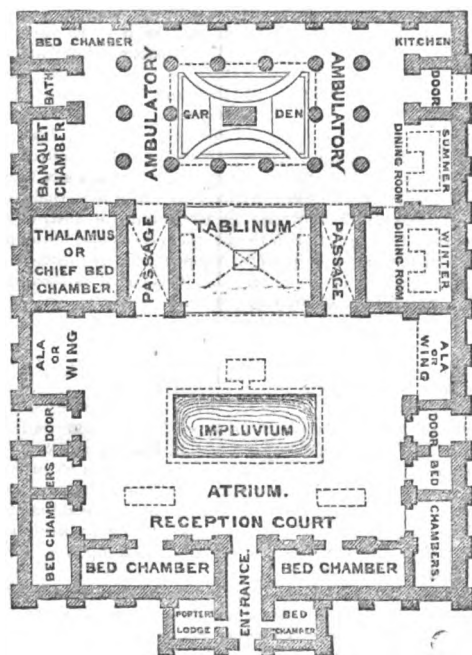
(Continued from page 28.)

THE POMPEIAN COURT.*

SEVENTEEN hundred and seventy-five years ago, the cities of Herculaneum and Pompeii, beautifully situated on the shores of the Bay of Naples, were buried beneath the lava and ashes vomited forth by Vesuvius. The horrors of this calamity are recorded in the writings of Pliny, and of other Roman historians of the period. So sudden was the outbreak and general convulsion that, as we learn, many of the inhabitants of those cities were caught in their terrible doom before the thought of escape occurred to them. The dread event completed, Nature resumed her former aspect. The mountain flames ceased, the intense blue sky again looked down upon the dancing waters, and there was nothing to tell of the general havoc, but a vast desolate tract covered with white ashes, under which man and his works lay entombed.

For upwards of sixteen hundred years these cities remained buried. But about the middle of the last century, curiosity with respect to them was stirred, inquiry commenced, and excavations were attempted. As in the more recent case of Nineveh, but with still more satisfactory results, success at once crowned investigation. The material that had destroyed Herculaneum and Pompeii had also preserved them. That which had robbed them of life had also perpetuated their story in death. The cities were redelivered to man so far undecayed, that he obtained actual visible knowledge of the manner of life of one of the most remarkable people that ever governed the world. To the insight thus obtained, the visitor is indebted for the reproduction of the Pompeian house before which he now stands—a habitation of the time, complete in every respect. It is not asserted that the visitor beholds the actual ground-plan of any one specific house, but he sees the type of a Pompeian villa, made up of many fragments that have been found. The paintings and decorations are copies of originals found in the destroyed cities.

The doorway of this house stands fronting the Nave. Entering it, we pass through the narrow prothyrum or passage, on either side of which is a room devoted to the door keeper and slaves, and on its pavement the representation in mosaic of a savage dog, and the words "*cave canem*"—beware of the dog—meet the eye. It is the usual notice found on the threshold of these Roman houses. Emerging from the passage, we are at once in the "*atrium*," or outer court of the edifice. The eye is not attracted here, as in other restorations of the palace, by the architectural design alone; the attention is also secured and charmed by the decorations. The bright coloured walls, the light fanciful character of the ornaments, the variety of patterns, and the excellent method of colouring,—which at the lower part is dark, and graduates upwards, until it becomes white on the ceiling,—constitute some of the beautiful features that give individuality to Pompeian houses, and cause them to differ most essentially from every other style.



GROUND PLAN OF POMPEIAN COURT.

* See page 29.

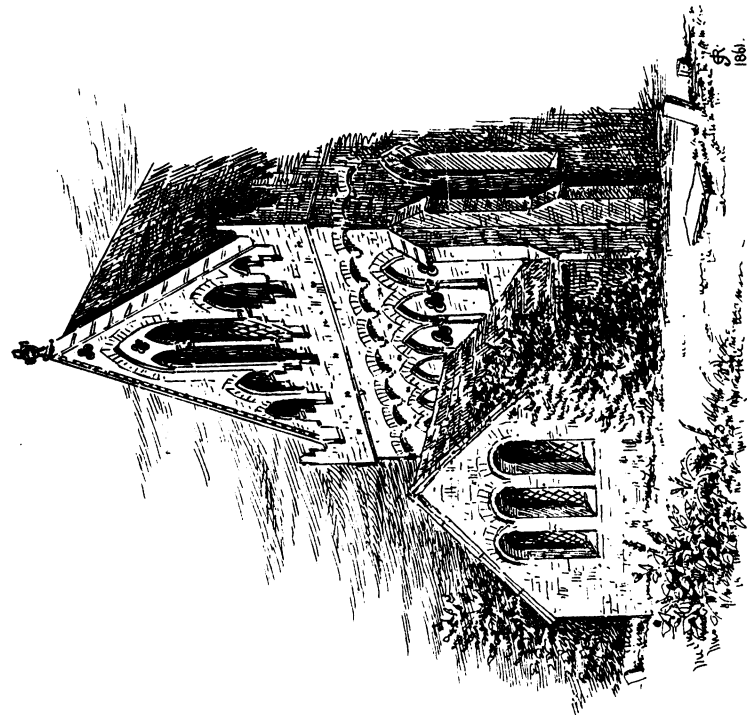
This entire court, or "*atrium*," was a part of the building common to all visitors. The opening above is the "*compluvium*," and the marble basin beneath, the "*impluvium*," which received the rain that fell from the roof. In the actual houses at Pompeii, the size of the "*impluvium*" corresponds, of course, with the dimensions of the opening above. Here the "*compluvium*" has been widened in order to admit more light into the court. The flooring consists of tessellated pavement, and near the two other doorways leading into the "*atrium*" is inscribed the well-known word "*Salve*"—"welcome"—announcing the profuse hospitality of the owner. Two out of the three entrances mentioned are formed here for convenience of egress and ingress, and are not copied from actual buildings, in which there are sometimes to be found, however, a *porta postica*, or back door.

As soon as we have entered the Court, we turn to the right, and proceed round it, stepping into the "*cubicula*," or bed-chambers, to admire the figures that seem to be suspended in the intensely fine atmosphere, and—with our English experiences—to wonder how, whether by day or by night, comfort could be attained in such close dormitories. We reach the side entrance, next to which is an open recess corresponding with a second recess on the other side of the "*atrium*." These recesses were called "*alæ*," or wings, and were used for the transaction of business with visitors. On the central panel of the first recess is painted a scene from the story of "*Perseus* and *Andromeda*," and on the side panel are again exquisite figures, painted not in the centre of the panel, producing a stiff formality, but nearer to the top than to the bottom, so that the forms still seem to float before us. Continuing our way, we turn into the large apartment opposite the door at which we entered. This is the "*tablinum*," and was used for the reception of the family archives, pictures, and objects of art. Across the "*tablinum*" a curtain was sometimes drawn, to separate the private dwelling-house from the more public "*atrium*," although it is a remarkable fact that no remains of hooks or rings, or of anything else, has been discovered to convey an idea of the means by which such a curtain could be attached. In order to enter within the "*tablinum*" a special invitation was required.

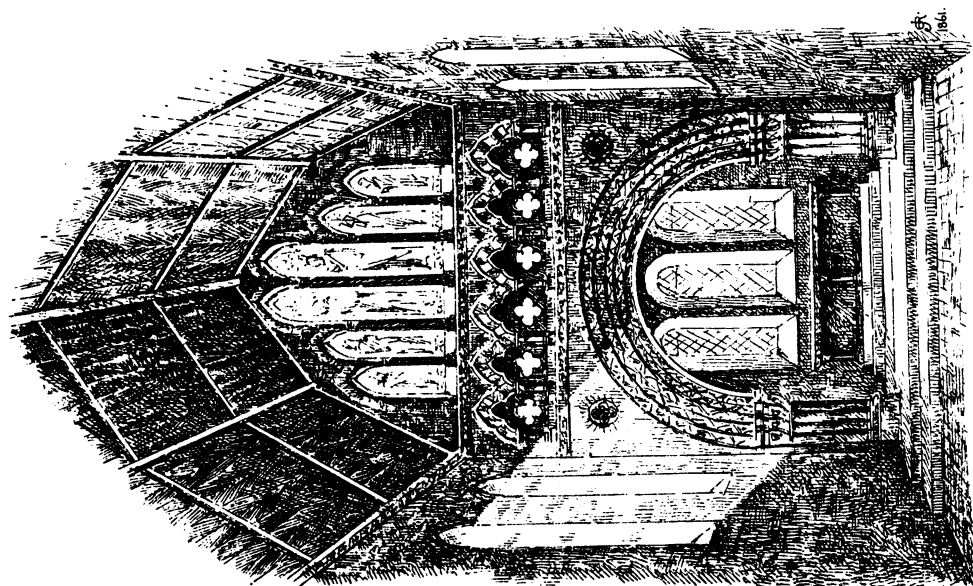
From this point, the "*Peristyle*" is also visible, with its columns coloured red some way up, a *Xystus* or flower-garden, and a back wall, upon which are curious specimens of perspective decoration, in which the Romans seem to have delighted. This court was always open to the sky in the middle. Passing through the "*tablinum*," and turning to the right, we come to a small doorway which admits us into the "*triclinium*," or winter dining-room. The Roman dining-room generally contained three couches, each large enough to hold three persons. In feeding, the Roman was accustomed to lie on his left side and to stretch out his hand towards the table in order to serve himself. Re-entering the "*Peristyle*," we proceed on our way, still to the right, and pass a summer triclinium used in warm weather, on the walls of which fruits are painted, some hanging in golden clusters on a wreath of foliage, supported by Cupids. Next to this is the "*porta postica*," or back door, and adjoining it a small recess, which served as kitchen. Crossing the "*Peristyle*," near one end of which is the domestic altar, we turn to the left, and after passing a small chamber, the "*vestiarium*," or dressing-room, reach the "*balneum*," or bath-room—that chamber so essential to the luxurious Roman. Close to this is the *æcus*, or saloon, and beyond this again, and corresponding with the "*triclinium*," is the "*thalamus*," or bed-chamber of the master of the house. Quitting this, we once more gain the "*atrium*," by means of narrow *fauces* or passages, and return to the Nave, through the door of the house at which we originally entered. The visitor has seen the extremes of decorative art, when, after sating his eyes with the profuse and dazzling embellishment of the Alhambra, he has also dwelt upon the delicate work of colours gracing the walls of Pompeii. From the gallery above the visitor may see the form of the ancient tiled roof made of the peculiar tiles still occasionally used in Italy. This Court was erected by Mr. Digby Wyatt. The paintings were executed under the superintendence of Sig. Giuseppe Abbate, of the Museum, at Naples. The mosaic floor was manufactured by Minton from drawings after antique Mosaic by Mr. Wyatt; and the bronze groups in the *tablinum*, and the *Venus* in the *lararium*, were electrotyped and presented by Messrs. Elkington and Co.

THE BYZANTINE AND ROMANESQUE COURT.

Before the visitor is conducted through the architectural courts on this side of the nave, which have all been erected by Mr. Digby Wyatt, it is necessary he should understand that they differ considerably in arrangement and treatment from those on the opposite side, which have already been described. In the Egyptian, Greek, and other courts through which he has passed, the forms or characteristics of some one distinctive structure have, to a greater or less extent, been given; but the courts into which we are now about to penetrate are not architectural restorations, but rather so many collections of ornamental details stamped with unmistakable individuality, and enabling us at a glance to recognise and distinguish the several styles that have existed and succeeded each other, from



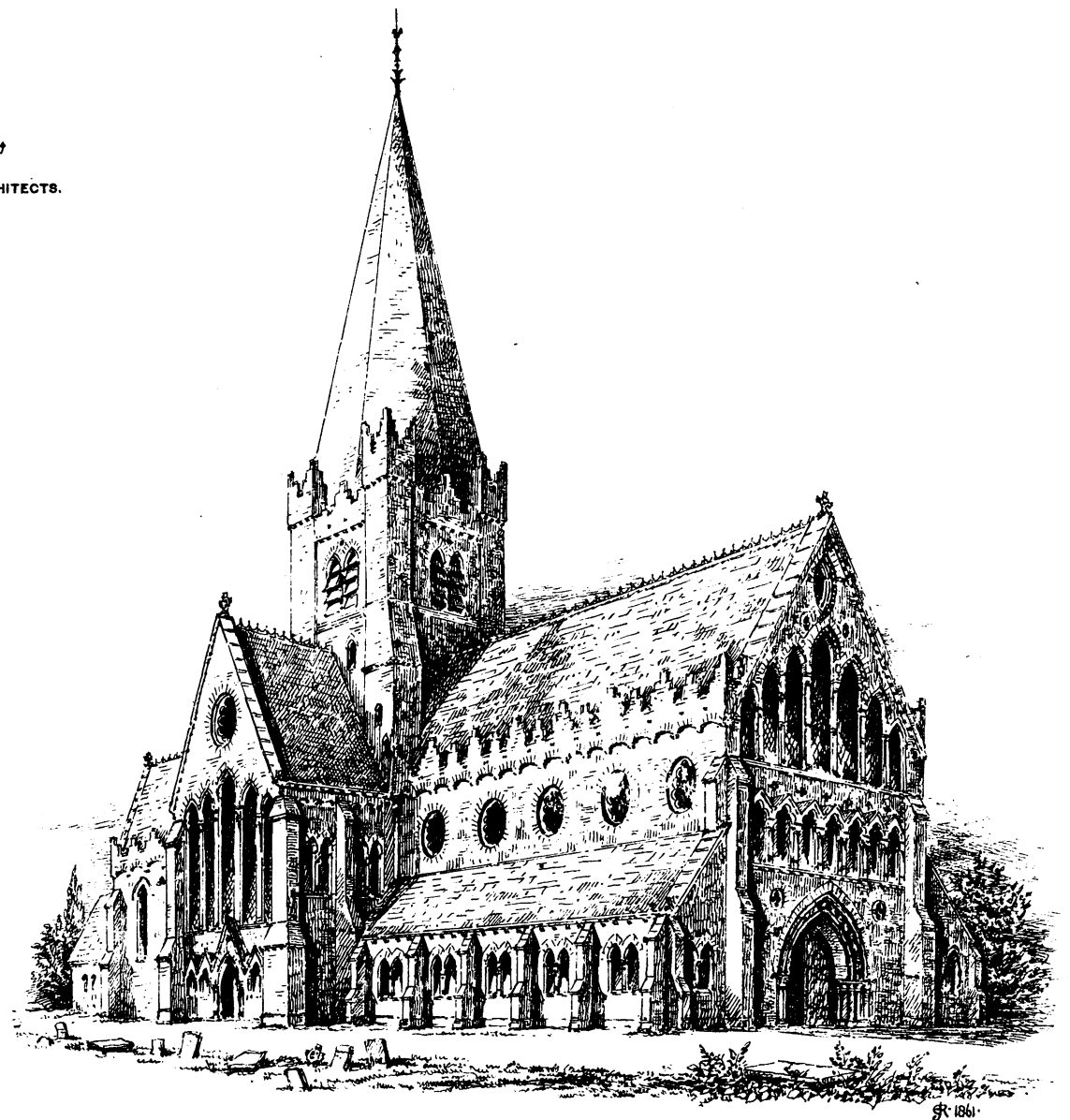
East end shewing ancient chancel.



Choir looking East shewing ancient arch.

Tuam Cathedral,

MESSRS. DEANE, ARCHITECTS.

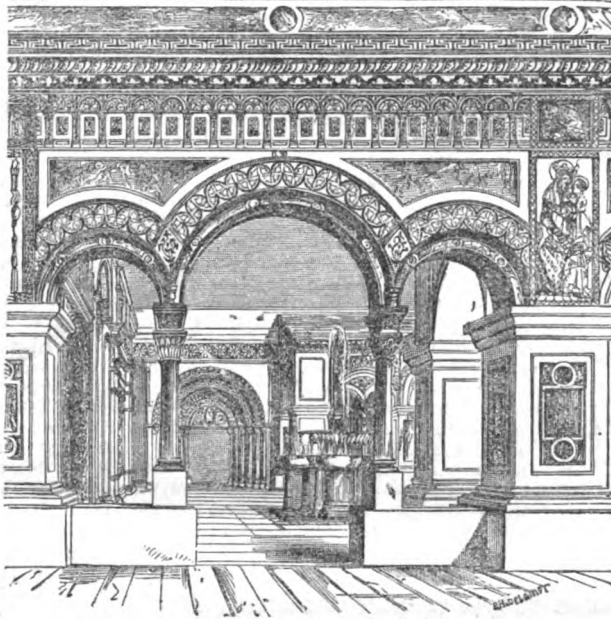


North west view of exterior.

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the beginning of the 6th down to the 16th century. In each court will be found important details, ornament, and even entire portions, taken from the most remarkable or beautiful edifices of the periods they illustrate. Thus the palaces and Christian temples of Italy, the castles and churches of Germany, the hôtels-de-ville and châteaux of Belgium and France, and the cathedrals and mansions in our own country, have all been laid under contribution, so that here, for the first time in the history of architecture, we have the opportunity of acquiring a perceptive and practical knowledge of the beautiful art during the period of its later progress.

The regular architectural sequence on the other side of the nave finds its termination in the Roman Court, and we now resume the order of history with the "Byzantine" Court. Art, as we have



BYZANTINE COURT (entrance from North Transept).

already indicated, declined during the Roman Empire; but the general adoption of Christianity gave the blow that finally overthrew it; for the introduction of this faith was, unfortunately, accompanied with bitter and violent enmity against all Pagan forms of beauty. An edict of Theodosius, in the early part of the 5th century, ordered that pagan art should be utterly annihilated, and the primitive Christians demolished with frantic zeal the temples, bronzes, paintings, and statues that adorned the Romish capital.

To complete the work of destruction, it is related that Gregory (A. D. 590), one of the celebrated "Fathers" of the Roman Church, gave orders that every vestige of Pagan Rome should be consigned to the Tiber; and thus was ancient Art smitten and overthrown, and the attempt made to efface its very foot-prints from the earth; so that, indeed, men had now to proceed as best they might, by painful and laborious efforts, towards the formation of a new and essentially Christian style of architecture, which, however feeble and badly imitated from ancient models at its commencement, was finally productive of the most original and beautiful results.

Constantine the Great, in the early part of the 4th century, embraced Christianity. The new religion required structures capable of holding large assemblages of people at certain periods; and notwithstanding the magnificence of some of the Roman structures, none could be found appropriate to the required use, save the Basilicas, or Halls of Justice, at Rome. The form of these structures was oblong, and the interior consisted of a central avenue and two side aisles, divided from the centre by a double row of columns, the central avenue terminating in a semicircular recess with the roof rounded off. It will be at once apparent that such buildings were admirably adapted to the purposes and observances of the new religion; and, accordingly, in A. D. 323, when Constantine removed the seat of empire from the West to the East, from Rome to Byzantium (Constantinople), the Roman Basilica probably served as a model for the Christian churches which he rapidly raised in his new city.

But on this point we have little authentic information; time, the convulsions of nature, and the destructive hand of man, have long since lost to us the original churches built on Constantine's settlement at Byzantium, and the oldest monument with which we are acquainted, that of Santa Sophia, built in the early part of the 6th century by Justinian, bears no relation in its plan to the long basilica of the Western Empire.

(To be continued.)

CARLISLE BRIDGE.

THE following plan is suggested for enlarging this thronged thoroughfare to a sufficient breadth, in a mode that will unite embellishment with convenience, and would involve a comparatively moderate outlay in the execution, unattended with any interruption of traffic or intercourse during the progress of the works:—

With a view to achieve this desirable purpose it is proposed to establish ornamental iron viaducts on each side of the existing structure, in harmony with its architectural order, extended to a proper width, and contrived with adequate strength to sustain any weight by which the safety of the enterprise may be tested. A division in the middle of the passage-way, by a line of low railings, will serve to regulate the alternate transit of vehicles along the iron courses. The removal of the parapets, and the substitution of handsome iron balustrades, with compartments for emblematic devices, constitute the only additional alterations required. Elaborate bronze castings of the Carlisle Arms would form appropriate decorations on the central arch. Suitable pedestals should be erected at the respective ends of the four terminating curves, and be reserved to receive the statues of illustrious Irishmen, a distribution that accords with the classical examples of antiquity—first, Moore's (removed from College-street); Goldsmith's, Burke's, Grattan's. It is reasonable to expect that the products of native genius, engineering science, and artistic skill, may adorn a site unrivalled for beauty in any other city of the empire, and impart an attractive elegance to nature's bounties. The whole appearance of the esplanade will exhibit a peculiar adaptation of features, at once striking, chaste, and unique. In case the project is favourably entertained, little difficulty will be found in its accomplishment, on the score of expense, which can be defrayed without seeking the aid of parliamentary grants, or increasing the burden of local taxation. The judicious renovation of a metropolitan monument, which derives its name from the title of our Viceroy, would present a grateful tribute to the merits of that distinguished nobleman. At the same time it will enable the country at large to participate in contributing towards the fund necessary for the completion of the undertaking. A design more complimentary and useful could not be selected to commemorate his Excellency's long official connection with Ireland, embracing a critical period of its destinies. The success of the Eglinton testimonial affords a precedent worthy of imitation, and reflects the greatest credit on the national character. It clearly proves that high administrative talents, combined with intrinsic worth, are qualifications justly appreciated by all parties, irrespective of politics or creed. The prospect of such rewards supplies the chief inducement for gifted individuals of elevated station, to engage in the arduous duties of a statesman's task, and in the competitive career for public honours, they win a prize more valued than rank or riches, "The wreath interwoven with the affections of a generous people."—M. J. K.

MONUMENTS OF ANCIENT TYPOGRAPHY.

(Continued from page 24.)

It must be very well known to all our friends who are acquainted with ancient typography, that there exist eight copies of a volume indisputably bearing the imprint of Oxford, and dated 1468, but without any name of the printer. This is usually called "The Oxford Book;" and its existence was first made known to the literary world in 1664, in connexion with a romantic narrative of the secret introduction of the typographical art into England, and the establishment of a printing-press at Oxford,—on the pretended authority of "a record and manuscript in Lambeth House." It has, however, never yet been found, though it has been frequently most carefully sought for. The author of the volume in which this story was propagated, was Richard Atkins, Esq., a gentleman of university education, travel, and of good family in Gloucestershire, who had greatly reduced his fortune in the civil wars, and after the Restoration endeavoured to retrieve it, by attempting to prove the king's right to grant the exclusive printing of law-books. He tried to effect this partly by law proceedings, on which he expended upwards of £1000, and partly by the publication of his "Original and Growth of Printing, collected out of the History and Records of this Kingdom."

He states in that work, on the authority of the Lambeth document, that Archbishop Bonner having successfully moved King Henry VI. to procure "a printing mould," to be brought into this realm, the means resolved on were to provide a large sum of money for inducing some of Guttenberg's workmen secretly to leave Harlaem, and bring the art to England. One thousand marks (£666 13s. 4d.) were provided for the purpose, and the management of the design was first committed to a person named Robert Turnour, a gentleman of the Office of the Robes, in some estimation with the king. He is stated to have engaged the

assistance of William Caxton, who was accustomed to travel commercially into Holland and the Low Countries. Turnour disguised himself; but Caxton, being well known, did not attempt any concealment; and they proceeded first to Amsterdam and then to Leyden; "not daring," says Atkins, "to enter Harlaem itself, for the town was very jealous, having imprisoned and apprehended divers persons who came from other parts for the same purpose." The king then remitted 500 marks more, on the information of Turnour "that he had almost done his work; a bargain," as he said, "having been struck betwixt him and two Hollanders, for bringing off one of the under-workmen, whose name was Frederick Corsells or Corsellis: who late one night stole from his fellows in disguise into a vessel prepared before for that purpose; and so, the wind favouring the design, was brought safe to London." As it was not considered prudent to employ him in London, Archbishop Bourchier sent him to Oxford with a guard, which continually watched him, until he had taught the Typographical Art to some others appointed under him.

The only book which was produced in Oxford in 1468 was an "Exposition of the Apostles' Creed," by Rufinus, erroneously attributed to St. Jerome: but the date of the next volume printed at the same place is 1479. This very large and remarkable discrepancy, without regarding the romantic record of Mr. Atkins, has raised the first objection, and the supposition whether the date should not be ten years later. The circumstances, also, that the types with which it is printed being found in only three other books professing to have been produced in this country, induced Dr. Dibdin, after a very careful examination, to consider that it might be a foreign production, notwithstanding the colophon. In the year 1812, the late Mr. S. W. Singer printed a small impression of a tract on the authenticity "of the Book Printed at Oxford in M CCCC.LX.VIII.—in which is examined its claim to be the First Book Printed in England."

After the consideration of a great deal of evidence on both sides, Mr. Singer arrived at the conclusion that the book was genuine; that the date and imprint were genuine; and that it had been really produced "at Oxford in 1468, by some foreign printer, of whose name we have at present no knowledge: with types probably brought with him from the Continent, or formed by him here, upon the model of those used by the German printers in the infancy of the art." At the time of the printing of Mr. Singer's tract, only four copies of the Oxford book were known, the last of which was then a very recent discovery; but when Dr. Dibdin published the fourth volume of his *Bibliotheca Spenceriana* in 1815, Lord Spencer's copy made the eighth. Dr. Dibdin stated therein, that though Mr. Singer and himself had formerly agreed in believing that the date of the Oxford book was genuine, they then considered that it should be read ten years later, 1478: partly because the leaves have signatures, which are not found before 1470; and partly on account of the great lapse of time intervening before another work appeared from the Oxford press. Mr. Atkins endeavours to explain this difficulty, by saying that the "press at Oxford was afterwards found to be inconvenient for the sole printing place in England, as being too far from London and the sea; and another answer has been the breaking out of the Wars of the Roses in 1469; but it is to be presumed that the same cause would have produced the same effect in London, yet Caxton's press at Westminster was continued at work during the whole of those disordered times. If a conjecture may yet be offered concerning the Oxford book, which should harmonize all these discordant elements, it might be expressed thus:—"That the Oxford book was unintentionally misdated, for which reason the authorities of Oxford caused the impression to be destroyed, which will account for the extreme rarity of the copies of it. That it was really printed abroad with the other books executed with the same types, as specimens for the University to decide on the engagement of the printers; and that, consequently, when Theodore Rood, of Cologne, and an Englishman named Thomas Hunt, really commenced printing at Oxford, in 1480, they had a new found of type materially differing from the former. Dibdin observes that, in the works printed with the types of the first Oxford book, there is not any printer's name; and that "sufficient instances may be adduced of books having been executed at one place with the name of a different place in the colophon."

This inquiry will, probably, always remain an open question; but in the present instance it has naturally led us to Caxton, concerning whom Mr. Singer rightly observes, at the close of his tract, that the decision of the matter does not in the least affect his venerable reputation, but that his memory will ever command all the admiration and respect due to the first English printer. I now place before you four books printed by this great father of British typography; being

The *Lyf of our Lady*: a Poem written by Dan John Lydgate, a Monk of the Abbey of Bury St. Edmund's; from the press of Caxton, but without any place or date.

The *Polycricon*:—compiled by Ranulphus Higden, a Bene-

dictine brother of St. Werburgh's monastery, Clester, printed in 1482.

The *Ymage or Myrrour of the Worlde*: written by Gaultier De Metz in 1245; and translated and printed by Caxton in the Abbey of Westminster, in the 21st year of Edward IV., 1481.

The *Payt of Armes and of Chyualrye*: written by Christine of Pisa; also translated by Caxton, and printed by him July 14th, 1480.

Most of the works produced at the first English press have their own literary history; but those books which have been translated and prepared for it by the first English printer must always have an especial claim on the regard and the remembrance of every English reader who really loves his country and his language. The works which were executed by Caxton himself, and which he subsequently published, are some of the most interesting of any which he produced; and it is chiefly from the prohemies, the prefaces, and the prologues which are prefixed to them, that we derive the very little positive information which is now extant concerning him. But to these auto-biographical notices, we must always most gratefully add these additional memorials which have been collected by the industrious research of Oldys and Lewis; Ames, Herbert, and Dibdin. We have now, however, a more copious and valuable book of reference on this subject by Mr. W. Blades, in the first volume of his "Life and Typography of Wm. Caxton, England's Proto-typographer, compiled from Original Sources," which has been published during the present year. From this authority I have taken the liberty to add a few particulars. Though the time of the birth of Caxton is quite uncertain, it has been confidently placed about 1412, which is probably too soon by ten years, as it is shown by Mr. Blades. He refers to the early part of his own life in terms which are equally filial and religious, in the introduction to his translation of his friend Boloniere's "Life of Charles the Great;" "enprynted the fyrst daye of Decembre, and the fyrste yere of King Harry the Seventh," 1485: and he says, "I have emprysed and concluded in myself to reduce this said book into our English, after the simple cunning that God hath lent to me:—whereof I humbly, and with all my heart Thank Him, And also (I) am bounden to Pray for my Father's and Mother's Soules,—that in my youth set me to school; by which, by the sufferance [permission] of God, I get my living:—I hope truly."

At this period, Caxton states that "the most quantity of the people understood not Latin nor French in this Royaume of England;" and in his preface to the "Recuyell of the Historiyes of Troye," he says, "I was borne, and lerned myn English, in Kente in the Weald: where, I doubt not, is spoken as broode and rude English, as in any place in England." Elsewhere, he notices London having been his mother, from whom he had received his nurture and means of living: by which he seems to refer to his having been apprenticed, June 24th, 1438, to Robert Large, a merchant mercer, who was Lord Mayor of London in 1439. Some time after the decease of his master, about 1449, he went abroad, apparently as a resident agent or factor, "for the space of xxx yere, for the moste part in the countries of Brabant, Flanders, Holland, and Zealand." In the leisure which Caxton found in his occupation, whatever it might be, he says, I took a French book, "for the eschewing of idleness, mother of all vices, and read therein many strange marvellous histories, wherein I found great pleasure and delight." This work, he continues, "I translated into English, and finished it in Coleyn, in time of the troublous world; and of the great divisions being and reigning; as well in the Royaumes of England and France, as in all other places universally through the world: that is to wit, the year of our Lord a thousand four hundred and seventy-one." Having thus become, as it were an author by accident, when he returned to England he brought with him the books which he had translated or prepared for the press during his residence abroad. But he especially brought hither the new art of printing, which he says that he "had practysed and learned at my grete charge and dyspence."

There can be no doubt that by these words, Caxton indicates that he had honourably paid a large sum to be taught the art, and to be employed as a practical workman and partner, as Mr. Blades supposes, by Colard Mansion, at Bruges; and he had also procured a press and types to be brought openly and honourably into England. This will appear the more natural and probable, if we consider that in 1463 he was governor of the English merchant adventurers at Bruges. He was also afterwards appointed by Edward IV. to assist the royal ambassadors to continue, or remodel, a treaty of commerce with the Duke of Burgundy. He was evidently in this capacity when the king's sister, Margaret, went to Bruges in 1468 to be united to Charles, Duke of Burgundy; and, as the truce of commerce was renewed at that ceremony for thirty years, Caxton appears to have returned to England about 1472, being then retained in the service of the duchess.

(To be continued.)

THE LATE MR. GILBERT COCKBURN, BUILDER.

THE members of the building profession in Ireland may justly be regarded as having lost "*the father of their bar*" in the decease of the above-named venerable gentleman,—the senior partner of the most eminent building firm in this city,—which event took place on the 7th instant, and somewhat unexpectedly, although a protracted illness is seldom surmounted by a patient at the advanced age of 73 years. The attainments of Mr. Gilbert Cockburn, senior, as a skilful practical man were of the highest character, and the integrity he brought to bear in their exercise, in the numerous important works with which his name was associated during a long career was so unexceptionable, that as regards the honest fulfilment of whatever contract he undertook, we sincerely believe the interests of an employer were fully as safe with him as if a council of our most scrutinising architects watched the progress of the works in every detail. Many proofs might be adduced—some even from our own personal knowledge—of the conscientious discharge of duty by the deceased under all manner of circumstances whatsoever, and even when heavy pecuniary loss was accruing from its rigid observance, but for our present purpose we content ourselves in simply thus recording a characteristic which proclaims an inherent nobility of principle, and commands unqualified respect.

Mr. Cockburn served his apprenticeship to the late Mr. Heiton, of Beresford-street, builder, and by a coincidence one of the buildings most recently completed by him, previous to his death, was the Presbyterian Church at Rathgar-road, designed by the nephew of his former master. A partnership was entered into between Mr. Cockburn and the late Mr. Arthur Williams, during which the firm built the three Lunatic Asylums of Ballinasloe, Carlow, and Derry; the Gaol of Cavan, and the Gaol and Court-house of Carlow, the stonework of the King's-bridge Terminus in this city, &c.; subsequent, however, to the dissolution of same, Mr. Cockburn individually reared to completion the following—viz., the Broadstone terminal buildings, Arbour-hill Military Prison and chapel, new square, Trinity College, Museums, ditto; part of Portobello Barracks, Kildare-street Club-house, the National Gallery and Royal Dublin Society's museum, the Agricultural Hall, ditto; Presbyterian Church, Ormond-quay; the churches of Zion, Rathgar, St. John's and Congregational, Kingstown; Clontarf Castle, Portumna-bridge, Loughrea, Birr, and Roscrea poorhouses, and new library, Bank of Ireland; mansions for Phineas Ryall, Old Connaught; Dr. Lloyd, Kilchreney; Richard Moore, Esq., Killeshee; J. Perry, Ballinagore; Boyd, Westmeath; John McClintock, Esq., Drumcar, Louth; Robert Fowler, Esq., Rahinstown House, Meath; John Quinn, Shanganagh, Bray; James A. Lawson, Esq., Shankhill, Bray; Lady Dinorban, Bangor, Wales; Todd and Brown's Mill; and Findlater's Brewery, Joneas-road, &c. The deceased was married to the daughter of Mr. Baker, the eminent builder of the Custom-house, Post-office, Carlisle-bridge, Nelson's Pillar, &c., and leaves behind him a family of whom two sons succeed him in the business, and in whom we feel assured so excellent an example by a father in all the relations of life will at least ensure careful imitation, and evoke an anxious desire to perpetuate an honored name.

As an employer, Mr. Cockburn was unanimously respected, and in testimony thereof not only the numerous employees of the firm, but the various trades of the city, chiefly comprehending the "regular operative carpenters" and "regular brick and stone layers"—each individual wearing a band of crape on his arm—paid the final tribute to his memory by accompanying his remains to their last resting-place, in Mount Jerome Cemetery, on Wednesday morning. We have never witnessed so highly gratifying a demonstration at the grave of a private individual, and the artisans who assisted thereat may justly be proud of their respectable and orderly bearing, while their countenances betrayed deep sorrow for the loss of their excellent friend.

The funeral cortege extended fully half a mile in length, and comprised from forty to fifty private and other carriages. Amongst those present we noticed Alderman Martin, and Messrs. Richard and Thos S. Martin (of the prince merchant firm of John Martin and Son), Jas. H. Owen, Lanyon, jun., Welland, Mulvany, Moyers, W. R. Farrell, Ferguson, and J. J. Lyons, architects; R. Turner, J. Bell, jun., and B. Patterson, C.E.'s; J. Kelly, T. H. Carroll, M. Meade, J. Henderson, and H. Kelly (timber merchants and builders), John Butler (Rathmines), John Carolin, George Farrell, S. Roberts, — Hall, sen., W. Crowe, Michael Crowe, S. Bolton, Geo. Carolin, John Nolan, Jas. Armstrong, Gregory Murphy, &c., (builders), Jaffray Barcroft, S. Rice, Ross (Ross and Murray), Fitzpatrick, J. Lavender, &c. An acquaintance with the above names, which in many instances represent some rivalry of interest, is in itself sufficient to prove in what estimation the deceased was held by those of kindred pursuits, and such a demonstration is to our minds about the proudest temporary memorial that could be presented to him.

In further compliment to the deceased, we may note that the Messrs. Martin and Son ordered the flags of their vessels in port to

be lowered half mast high, and the example was very generally followed by masters of shipping. It may reasonably be inferred from the above chronicle of proceedings in connection with the sad event, that pleasing reflections must largely contribute to the solace of the deceased's relatives.

ROYAL DUBLIN SOCIETY.

IN the report of council presented on the 6th inst., the following paragraphs occur:—

"An estimate has been obtained for the entire frontage of the lawn, of the cost of the iron railing, gate-piers, and granite plinth, the entire of the same pattern as those erected in front of the National Gallery, the amount of which is £706 13s. The council regret to say that the society's funds at present will not permit the outlay of this sum; consequently, it will be necessary to decide what steps should be taken under the circumstances. . . . The society has recently expended upwards of £4,700 (no part of which has been supplied by the State), in building a permanent Agricultural Hall, designed to give a further extension to this important branch of its labours, which has contributed largely to the improvement of Ireland, and is one of the main intentions of the charter of the society. . . .

The following is the return of the attendance of visitors to the Botanic Gardens on twelve Sundays, from the commencement of the opening:—On Sunday, 18th August, 700; 25th August, 1,560; 1st September, 12,165; 8th September, 180; 15th September, 14,760; 22nd September, 2,340; 29th September, 14,800; 6th October, 15,100; 13th October, 2,970; 20th October, 7,590; 27th October, 5,300; 3rd November, 1,167. Total, 78,132. The council wish to urge upon the Department of Science and Art the expediency of funds being provided for the erection in the garden of a suitable building for a Botanical Museum, similar to that in connection with the Botanic Gardens at Kew and Edinburgh. . . . In order to place the School of Art upon a satisfactory basis, the council are of opinion that it should be intrusted entirely to the management of the Royal Dublin Society, and that a Parliamentary grant of at least £400 should be voted annually for its support. Masters, to be chosen as the society may determine (certificated teachers of the Department of Science and Art to be preferred), should be appointed in the following subjects:—Figure Drawing, Modelling, Architecture and Machine Drawing, Landscape, in addition to which, it is highly desirable that there be appointed a Lecturer or Professor in Artistic Anatomy, who should be paid for the instruction he may deliver. It is also recommended that the excellent system of elementary teaching prescribed by the Department of Science and Art shall be strictly enforced; and that they shall be solicited to continue the prizes and rewards as at present, including the appointment and payment of pupil teachers, prize students, &c. It is not proposed that any alteration shall be made in the present scale of fees. . . .

Sums required for completing Departments:—Capitalization of rent of National Gallery, £3,000; completion of Museum of Natural History, £4,750; preparing and publishing a Catalogue of the Minerals, £500; Library, completing and furnishing new rooms, £1,000; Museum of Botany, about £1,000; for maintenance of School of Art, £400."

INSTITUTION OF CIVIL ENGINEERS OF IRELAND.

A GENERAL meeting was held in the Museum Buildings, T.C.D., on Wednesday evening last, Mr. M. B. Mullins, C.E., Vice-President, in the chair. Mr. James Price, member, read an elaborate paper "On the relative advantages of various forms of permanent way used in Ireland, especially with reference to the mode of fastening the joints," and illustrated his remarks by various models. A discussion ensued, in which the chairman, Mr. B. B. Stoney, Mr. Bower, and Mr. Corbett took part. Mr. William Anderson, member, also described very minutely in a paper "The re-construction of the Malahide Viaduct, on the Dublin and Drogheda Railway," and exhibited both a model and enlarged drawings of the new structure, drawings of the old bridge, and stereoscopic views showing the works in various stages of progress. Mr. Bower wished to know was Mr. Hawkshaw, C.E.—as stated by that gentleman, before a committee of the House of Commons—entitled to the credit, or to any share thereof, of this important work; to which Mr. Anderson in substance replied, none whatever; the design and superintendence to completion were by the company's engineer, Mr. Marcus Harty, C.E., but Mr. Hawkshaw had submitted a design which was not adopted. After some observations by Mr. Frith and Mr. Geoghegan, the meeting adjourned.

[We may here remark, that for the gratification and instruction of our readers—many of whom are civil and mechanical engineers—we should willingly devote a sufficiency of space to publish, *in extenso*, the valuable papers read at this Institute, if permitted a copy; but our applications to that effect have not hitherto met with an affirmative response, owing, as we are informed, to a rule of the body precluding publication unless in the transactions of the Institute. This we must, with all due respect, regard as a *great mistake*, for many a light must thereby be hidden "under a bushel," which otherwise would illumine a very extended and important section of society. We hope for this rule to be speedily cancelled.—Ed.]

LONDON ARCHITECTURAL ASSOCIATION.

At recent meeting, Mr. Church read a paper on "the induration of stone," which elicited a discussion. Mr. Trotman referred to one of the processes mentioned by Mr. Church—viz., by the application of silicate of potash and aluminate of potash; also, to a book on steren-chromy, published by the late Prince Consort. He then proceeded to describe the process which he thought would be found of great use in the preservation of stone. Silica was the principal and silicate of potash the second material therein. After various other remarks by same speaker, Messrs. T. Roger Smith and the chairman, Mr. Blashfield, president, followed with some observations.

ROYAL IRISH ACADEMY.

A GENERAL meeting of the members was held on 10th inst., the President, Dean Graves, in the chair. Surgeon Wilde brought under the notice of the meeting a paper written in 1747, by Mr. Simon, on certain antique gold articles found prior to that period in Ireland, thinking that the first mention made to any learned society of Irish antiquities might be deemed interesting enough for publication. The paper of Mr. Simon described nine gold articles. Surgeon Wilde exhibited some excellent drawings of Irish antiquities made more than a century ago. The Rev Samuel Haughton communicated the result of a series of experiments which he had lately made to determine the "co-efficients of elasticity of recoil of steel, soft iron, oak, teak, and brass." The results of his experiments he stated to have established that the co-efficients of elasticity diminished as velocity increased, but he had not been able as yet to fix the ratio of diminution. All treatises on mechanics laid it down, that the coefficient of elasticity was equal to the velocity of approach, but this he found to be an error. A discussion followed, in which Professor Hennessy, the Rev. Professor Jellett, and the Rev. Professor Haughton took part. A letter was read acknowledging receipt of address of condolence with her Majesty.

Notes of New Works.

In our notice of Mr. Rosenthal's house, now rebuilding in Nassau-street, we should have stated that it would display a front of Portland stone, instead of "brick and cement." We gave the information at the time as it reached us.

Messrs. Lloyd and Summerfield's (Birmingham) patent glass sashes are being fixed in the new front at present erecting in Upper Sackville-street by Mr. Eakins; Mr. Caldbeck, architect. This is the first adoption of the patent in Dublin, and as "a good example is worthy of being followed," we should hope for its extensive application by our local architects. Of its recommendatory features we have before spoken.

A large mansion, to be entitled Knockmaroon House, is in course of erection for Mr. Gilbert Burns. It is in the Italian style, with a campanile centrally placed over the principal entrance. Into a tank placed in this tower, at a height of 150 feet, water is conducted from the River Liffey a quarter of a mile distant, and thence a supply is obtained for the house, the gardens, and the conservatories. This portion of the work was entrusted to Messrs. Ross and Murray, and has been carried out in their usual efficient manner. The house will be heated with hot water pipes, and lighted with gas from a gasometer and works on the premises. Mr. D. C. Ferguson, architect; Messrs. Cockburn and Sons, builders.

A fire-proof apartment, 17 feet 6 inches in length by 7 feet 6 inches in width, and 6 feet 2 inches in height to soffit of arch, is being constructed by Mr. Saunders, of Dame-street, ironmonger, in the basement storey of the Ballast Office building in Westmorland-street. The walls and arched ceiling are of best firebrick of unexceptionable workmanship, and the floor is of chiselled granite flags. Entrance will be obtained from the corridor through a doorway with solid granite jambs, sill and head, and fitted with a massive fire-proof door, from the factory of Milner and Son, of Phoenix Works, Liverpool, and weighing some 16½ cwt.

The new district church of Lower Falls, Belfast, for which plans had been prepared by Messrs. Welland and Gillespie, architects to the Ecclesiastical Commissioners, has been commenced, Messrs. McLaughlin and Harvey being the contractors.

The foundation stone of the new church of St. Agatha, Tralee, has been laid.

It is proposed to erect a new cathedral at Cork. We recently announced a similar project for Belfast.

The Lord Lieutenant and Privy Council have approved of the expenditure of a sum of £6,500 in additional works and alterations in the Armaigh District Lunatic Asylum.

It is proposed to erect a station at Ballybrack, on the Dublin and Wicklow line. The accommodation of the Booterstown station is said to be too limited.

The railway station at Dundrum, near Dublin, has been lighted with gas, Messrs. Edmundson and Son supplying the apparatus.

Extraordinary progress has been made in the construction of the line of railway from Ballyhaunis to Claremorris—the rails being completed for five miles, and the remaining three miles being fast progressed with. The line will be opened before the close of the month, as every preparation is now completed, with the exception of one or two portions of the bog near Claremorris.

The contractor for the railway works between Rathdrum and Arklow has made good progress; the two abutments and some of the piers being up to the level of the springing of the arches. The heavy rock cuttings at Rathdrum and through Avondale are also well advanced. A total quantity of 257,000 cubic yards of rock, and 246,000 cubic yards of clay has been excavated. Several bridges and culverts have been built, and the masonry throughout is very good. On the original line the permanent way and works have been maintained in good order. The wooden top of the large centre span of Bray river bridge has been removed, and replaced by wrought iron girders.

The Great Southern and Western Railway Company's valuator has handed in his report on the land required for the branch from Roscrea to Birdhill, and the engineer has the contract plans in a forward state. When the land has been acquired, tenders will be taken for the execution of the work. Considerable progress has been made in the construction of stations at Castletownroche and Ballyhooly, on the Fermoy branch. Two small stations of an inexpensive kind have been opened between Tullamore and Athlone, to test the traffic of that district. The branch of the Cork and Youghal Railway to Queenstown is nearly finished. The directors think it desirable that the company above named should form a junction with that line from the Cork terminus, so as to admit of mails, troops, and emigrants being carried direct from all portions of the line to that important harbour, and state that this junction can be made at a small cost—the distance being about ¼ mile, and the land required being nearly all in the possession of the two companies. The extension of the Wexford and Bagnalstown Railway, from Borris to Ballywilliam, is nearly complete.

The directors of the Cork and Bandon Railway have, within the last month, invited tenders for the erection of an iron bridge over the Bandon river, near Innoshannon, in place of the present wooden structure, and a contract has been entered into with the Cork Steamship Company for the construction of same, the works of which will be commenced immediately, and in such a manner as not to obstruct the traffic. The works on the Kinsale Junction Railway are progressing, and the line is expected to be open for traffic next summer.

The works on the Cork and Macroom line will, it is expected, be entered on forthwith.

The branch railway between Cavan and Clones is now completed, and will be open for traffic early next month; Mr. Barton, engineer-in-chief.

Mr. Hague is proceeding rapidly with the erection of the terminus at Cavan, which will, it is expected, be completed in June next, and will be used in common by the Milland Great Western and Dundalk and Enniskillen Companies. Separate stores will be built for the latter company. The terminus, according to the local *Observer*, promises to be a very handsome and commodious one.

A large chasm, caused by a subsidence on the Tramore Railway, is being speedily repaired, under the direction of the engineer, Mr. Lefanu, C.E.

The replacing of the timber top of the Innoshannon viaduct by wrought iron girders will be completed this spring; this will make the viaduct a permanent structure, as the pier and abutments are of stone.

Maynooth.—The new infirmary now being erected for St. Patrick's College, Maynooth, stands to the north of the new quadrangle. It contains on the ground floor a chapel, day room, consultation room, pharmacy, study, ward for accidents, infirmary's apartments, refectory, kitchen, baths, and offices. The upper floor is divided into wards of various sizes, single rooms, convalescent room, baths, &c. The style is very plain Gothic. Mr. J. J. McCarthy, architect. Messrs. Carolin and Kerr are the contractors.

Carrickmacross.—The first stone of the beautiful Church of St. Joseph was laid last July, and the works have proceeded rapidly since. The plan comprises nave, aisles, transepts, chancel, and side chapels, two sacristies on the north side, north porch and tower at west end of south aisle. The dimensions in clear are 125 feet 6 inches by 58 feet 6 inches across nave and aisles, and 90 feet 6 inches across the transept. The lower part of the tower is a baptistery. The organ gallery is situated in the north transept, and is approached by an external stairs in a turret. The nave is entered at the west end by a double door deeply recessed, with elaborately-moulded jamb shafts and arches under a lofty canopy; the central shaft supports a carved tympanum. The south door of transept is also deeply recessed. Over it are two lofty two-light traceried windows and a circular window filled in with tracery in the gable. The

window in the north transept over the organ is a Catherine wheel 15 feet in diameter. The west window of nave has five lights with traceried head, and the east window of chancel has seven lights with elaborate tracery in the head. The total height of tower and spire will be 186 feet. The style is highly-decorated Gothic. The exterior is built with lim-stone from the locality. White sandstone is used for the interior pillars and arches. The works are being carried on under Mr. George Burnett, clerk of works.

Kilrush.—The Convent of Mercy, with Schools and House of Mercy, are to be erected on the ground liberally granted for the purpose by Colonel Vandeleur, facing Toler-street, Kilrush. The buildings will form a quadrangle of 125 feet square, and will be three storeys in height. The convent will occupy the south side of the quadrangle, and will contain all the necessary accommodation for a community of twelve. The schools and chapel will occupy the east side, and the house of mercy, offices, &c., will fill up the north and west sides. The entire will be connected by a cloister surrounding an open court. The style is very plain, but the grouping and outline will be very picturesque. The convent is about being proceeded with immediately, and tenders have been advertised for in the *Limerick* and local journals. The schools and other portions of the works will soon be taken in hand.

NEWS ITEMS.

The Cavalry Barracks at Maidstone are to be rebuilt on a greatly extended scale.

Alderman Drummond has offered to give £10,000 towards the erection and endowment, in this city, of an institution for the training and educating of soldiers' daughters, if the Government give a similar sum, and the public raise by subscription a third £10,000. Alderman Drummond proposes to make it a counterpart, in working and design, of the institution for educating soldiers' boys in Phoenix-park.

The contributions to the London Exhibition are gradually leaving Rome. Mr. Gatlé's colossal *basso relievo* has been got on board a vessel on the Tiber after great difficulty; the mass of marble, with its case, weighing not less than fourteen tons. Mr. Carlwell's beautiful statue of Diana, and his group of Cupid and Pan, have also been packed; but Mr. Spence's colossal group, "The Finding of Moses"—a most striking production—is still in the artist's studio. On the 25th inst. Mr. Macbean will forward the productions of Roman contributors from Civita Vecchia.

The Carnival season is proceeding gaily in Rome. The palaces are thrown open to the privileged classes, foreign and indigenous; and theatres of all grades, from the Apollo to the Piazza Navona, are crowded by their respective *habitués*.

The sisters Marchisio, with Mr. Bolton (tenor), Signori Cosselli and Ciampi (basso), Vieuxtemps (violin), M. Lamoury (violin), and Arthur Napoleon (pianist), will assist at a third grand concert in this city, on Monday evening next.

The statue of Dr. Jenner has been removed to Kensington Gardens. This statue, it will be remembered, was some time ago promoted to a distinguished place near the Nelson Column in Trafalgar-square, London.

In addition to Verdi's *La Forza del Destino*, Gounod's new opera, *La Reine di Saba*, has also been purchased by Cramer, Beale, and Wood. Gounod's reputation as a dramatic composer is now in the ascendant in Paris, and great expectations await the first performance of *La Reine di Saba*, which will be produced at the Grand Opera during the present month.

Mr. Richard Westmacott, R.A., commenced a series of lectures on sculpture at the Royal Academy, on the evening of the 10th inst.; and Mr. S. A. Hart, R.A., another series on painting, on the 13th instant.

At the Niccolini Theatre, Florence, two other great rival Othellos have appeared, in the persons of Signori Salvini and Rossi. The former is, however, admitted to be superior in personal gifts of feature. It is said that Rossi's Hamlet is in many respects a finer performance than Fechter's, and that of this the London (we hope the Dublin also) public will shortly have an opportunity of judging. At the Teatro Pagliano, La Medori is singing in *Norma* to crowded houses.

The Albert Memorial Fund is now about £30,000, and it will shortly probably reach £50,000 for the metropolitan monument alone. Many are in favour of, and as many against, the monolithic obelisk form being adopted.

Choice of design for new Blackfriars-bridge has been again deferred. The *Athenæum* speaks disparagingly of Mr. Page's—the favoured competitor's—plans for this, as also for the suspension bridge erected at Chelsea.

The exhibition of the Society of Female Artists is now open in London.

An exhibition of grand historical paintings by Mons. Court, historical painter to the French Court, was opened in the Rotundo on the 13th inst.

Mr. Smiles's "Lives of the Engineers," although the price is two guineas, has already reached its fifth thousand.

The Board of Works of St. Margaret's and St. John's parishes, London, have ordered the removal of Mr. Train's tramway.

The bill for the removal of Smithfield Market has passed the standing orders of Parliament.

The sanitary committee held a meeting at the Painters' Hall, in South King-street, and are pursuing their labours zealously.

"Raising the Maypole" is the print selected for the subscribers, for present year, to the London Art Union.

The Handel festival—now a triennial institution—will again take place at the Crystal Palace in this year. The attendance thereat in 1859 exceeded that of 1857 by 30,000 persons. The Exhibition will ensure even a much larger assemblage proportionately.

The report of the Directors of the Dublin and Wicklow Railway Company for the half year ending the 31st December last shows the gross traffic receipts amount to £62,374 14s. 2d., which is an increase of £5,220 4s. 9d., as compared with the previous half year. The receipts of the Kingstown line were £34,409 2s. 11d., and those of the Wicklow line £27,965 11s. 3d., including the tramway. Of the total increase, £4,968 0s. 1d. has accrued on the Wicklow, and £257 4s. 8d. on the Kingstown line. The working expenses for the past half year were:—Wicklow line, £10,060, and the Kingstown line, £10,764. Out of the surplus the directors recommend a dividend on the original stock at the rate of three per cent. per annum, or 3s. per £10 share for the half year, which would absorb £7,156 9s., and leave a balance of £7,388 11s. to be carried forward to next account. On the whole year ended 31st December, 1861, there has been an increase of £12,091 5s. 2d. in traffic receipts over the corresponding previous year, namely, £8,598 3s. 11d. increase on the Wicklow line (on which the traffic amounted to £49,259 8s. 3d., as against £40,661 4s. 4d. in the previous year), and £3,493 1s. 3d. increase on the Kingstown line (on which the traffic receipts were 65,599 4s. 3d., as against £62,106 2s.); the aggregate traffic receipts of both lines together having been £114,158 12s. 6d. in 1861, and £102,767 7s. 4d. in 1860.

A great improvement is proposed to be made in the manufacture of gas by Mr. Leslie, a well-known author of works on "gasology," whose plan is to divide the process of gas-making into two distinct branches. The first operation to be carried on at the collieries, where the refuse coal, now wasted at the pit's mouth, is to be submitted to distillation at a low temperature in revolving cylinders, heated externally by a fire. The revolution of the retorts causes the small lumps of coal to be constantly kept in motion, and prevents one portion becoming hotter than any other. Thus all the products are distilled in a liquid state, and condensed in suitable vessels, which are kept cool by water. Care is taken to keep down the temperature of the rotating retort as low as practicable, to prevent the production of gas which will not condense, the object being to obtain only fluid hydro-carbon oils by the first process of distillation. The oil so obtained may then be submitted to purification from the nitrogenous and sulphur compounds which are so fruitful a source of complaint when they find their way into illuminating gas; and we need scarcely say that it is far easier to remove all the nitrogen and sulphur from a gallon of this oil than from the 150 or 200 feet of gas, of which it is the representative. When the oil has been properly prepared and purified from all deleterious substances, Mr. Leslie proposes that it should be conveyed to London, or wherever else it be needed, to be converted into gas. These works not only consist of a few retorts and a gasholder or two, all the complicated machinery now needed for the purification being rendered unnecessary. This process promises to effect a complete revolution in the manufacture of gas. It will be brought up to the consumers in a highly condensed and purified form. This can be stowed away in any quantity for future use, and can be sold for private consumption, and for the supply of small villages, gentlemen's seats, railway stations, shipping, or other purposes, where it is preferred to make gas on the spot as it is wanted.

LAW NOTES.

COMMON PLEAS NISI PRIUS.

McCormick v. Maxwell.—Plaintiff (Mr. James McCormick, builder, Talbot-street) instituted an action against the defendant (Mr. William Maxwell, a gentleman of property, residing at Cruisearth, in the County Dublin) to recover a balance of about £125, alleged to be due on foot of a contract entered into in the year 1860, to erect stables and other out-offices for the defendant at his residence. The original contract was for a sum of about £850, but it was alleged that there was a great deal of extra work done, and the balance sought to be recovered was claimed as due, after giving credit for a sum of £150 lodged in court. The case occupied the entire day.

Verdict for plaintiff for £33 over amount lodged in court, and costs.

Howley v. Howley.—Action for £553 on foot of a building contract. Plaintiff contracted with defendant, the Very Rev. Mr. Howley, P.P., for the building of the spire of the parish chapel of Tipperary.

Plaintiff was bound to do the work according to specification, and within a certain time; if he failed to do so, the work was to be finished at his own expense. Defendant pleaded that plaintiff did not fulfil his contract; that it became necessary to complete the work which he left unfinished; that the cost of doing this was £600; and that the plaintiff, therefore, was not entitled to recover anything. Verdict for plaintiff, for £300.

COURT OF BANKRUPTCY AND INSOLVENCY—IMPORTANT DECISION.

Are Beetling Engines Fixtures?—Judge Lynch, in pronouncing judgment upon the property in certain engines of Messrs. Dill of Ballymena, bankrupts, said the description of the machines in question is detailed in the evidence. Mr. Gray describes them, after describing the water-wheel itself, as removable, by taking off the caps of the pedestals, &c., and the shafting and gearing as removable by removal of screws, &c., and deposed that all these things could be removed without injury to the freehold. The beetling engines are six in number, each attached to the other, so that the whole becomes steady by its weight, and rests on stones laid above the floor, but not screwed or fastened in any way to the stones or the floor—so standing undetached and separate; "little bits of stays" go from each machine to the joists above; and this is done merely to steady the framing at work, and serve no purpose of propping the upper floor, but being only to prevent vibration in the machines themselves would have rather the opposite effect as regards the upper loft; they are worked then by a shaft which is attached to the shaft of the wheel by a coupling box, made fast by screws; "the shaft of the wheel is connected by a coupling box to the beetling engine as if it was all a solid thing." Now, I have to decide whether these machines are goods and chattels, to be removed and sold by the assignee, or are fixtures belonging to the mortgagee, as contained in the deed of mortgage. I have already ruled the water-wheel to be a fixture, and the gearing also—this is *res adjudicata* here. Unfortunately, the cases on this point are numerous and conflicting, and what is much worse, it is impossible to deduce any fixed and certain propositions to announce as determining principles and unalterable. The very definition of the term "fixtures" is itself uncertain. Fixtures most often mean things fixed to the freehold, but by reason of usage not finally dedicated thereto, but capable of removal for the benefit of trade, and upon other grounds of exception. This definition treats all fixtures as annexed actually themselves to the freehold; but fully to comprehend the subject, another class of chattels must be regarded, namely, such as become annexed by relationship—that is as necessarily belonging as parts of a whole thing to that which has actual annexation to the freehold. Now, it is clear that this leads to a very wide and somewhat lax principle, introducing the purport and object of machinery, and the use intended in particular cases, and renders all the cases on this matter complex, uncertain, and unsatisfactory, and I refer to Mr. McKibben's case, as reported, as showing the great latitude of construction capable of being applied to the mere question, what is a fixture?—Independent of the other intricate inquiry as to its removability in various relationships of property. If McKibben's case be rightly decided, these engines are within the rule applied to the steam engine by the Chancellor. If this be so, it almost necessarily follows that when I have ruled the water-wheel and gearing to be fixtures, that the beetling engine, for which they exist, must also have the same character. Two very recent cases I have found go a good way to confirm this part of the judgment in McKibben's case—*Mather v. Frasers*, and *Walmsley v. Milne*. They seem to confirm that part of the judgment in McKibben's case which is applicable to the point before me. In this case there is actual annexation of the engines—therefore, it is stronger than many of the cases. Of course the point may be raised as to the "stays," that it is annexation merely for the use and working of the chattel, but that must be subject to the further consideration, that it is the very purpose of the whole building and waterpower to work such engines, and they require for the due working annexation to the freehold, and to employ the water power they require, again, annexation to the shafting, and all the later cases go to show that it is not a necessary test that such annexation is effected by screws and bolts easily removable, if the purpose of annexation be of a permanent nature. In this case, further, the thing mortgaged was a beetling mill, and were I obliged to rule the case proved by the assignees, I should give to the mortgagees the bare walls of what once was a beetling mill, having taken away the water wheel, the gearing, and every matter therein, which made it at all what was given as a security. I, therefore, rule this question also in favour of the mortgagees.

The builders of this city are about presenting their colleague, Mr. John Butler, of Rathmines, with a very handsome and valuable service of plate, manufactured by Messrs. Waterhouse, in token of their appreciation of his independent and manly defence in the protracted case of *Kempston v. Butler*, relative to the fall of a house in Grafton-street. We shall notice its features when presented.

Miscellaneous.

TESTIMONIAL.—The Directors and Shareholders of the Dublin, Wicklow, and Wexford Railway Company are about presenting their late Secretary, Mr. Arthur Moore, on his retirement to a like capacity on the Bristol and Exeter line, and succeeded by Mr. Maunsel, with a valuable testimonial in acknowledgement of services rendered during his official connexion. The compliment is as happily conceived as it is well merited, and will doubtless be substantially realised. [This, we are informed, has since been presented, and consists of a handsome timepiece.]

ADMISSION CHARGES TO THE COMING EXHIBITION.—The publication by the commissioners of the scale of charges and conditions adopted has given general dissatisfaction to the public, as the payment of five guineas, and three guineas for season tickets, is regarded as far too exorbitant for an enterprise which professes to be not only popular and national, but international. In connection with this subject I may state that it is rumoured in art circles that the honour of a baronetcy will be offered to Mr. George Godwin, F.R.S., the architect, and editor of the *Builder*—a publication which, under Mr. Godwin's management, has attained a deservedly high place among the class literature of the day. Mr. Godwin has long been known as an eloquent and thoughtful writer on sanitary questions, and an unostentatious labourer in the field of practical science. The proposed distinction would, therefore, be considered in the light of a graceful compliment to that art journalism to which the public is so much indebted for improvement in the national taste.—*London Correspondent of Freeman*.

ART DESIGN AT THE INTERNATIONAL EXHIBITION.—The following minute of the Art Designs Committee of the International Exhibition of 1862 has been forwarded for publication:—"Her Majesty's Commissioners for the Exhibition, being desirous of exhibiting the progress of art designs for manufactures, would be glad to receive contributions from possessors of drawings and models by British artists executed within the century 1762-1862. Artists, designers, and manufacturers in general are hereby invited to send works, suitably framed and glazed, or if of large size on strainers, properly prepared for hanging. Designs in all departments of art industry capable of reproduction are admissible in this class. Designs for glass and ceramic wares, precious and other metals, furniture and carving, plastic decorations, and other objects in relief; also designs for textile fabrics, paper-hangings, mural decorations, tiles, mosaics, lullays, stained, painted, and decorated glass, &c. Assistance from the possessors of drawings and models by such artists as Chambers, Adams, Soane, Stothard, Flaxman, Pitts, Pugin, Wyon, and others, is especially desired and the committee trusts that the holders of such works will communicate with the secretary as early as convenient. Illuminations of an original character will be admitted into this department. All works must be delivered for the inspection of the committee, on or before the 31st of March, at the South Kensington Museum (office entrance).

SOME DEFECTS OF BAR IRON.—Two common defects of bar iron are known as red short and cold short. Red short iron is that which cracks when bent or punched at a red heat, although it may be sufficiently tenacious when cold. Cold short iron, on the contrary, is weak and brittle when cold, but can be worked without much difficulty when hot. The equality of a bar of iron may be tested by nicking it at one side with a chisel, and then breaking it or doubling it down at the notch. If the iron be cold short, it will break off at once with the blow of a sledge hammer; but if the bar be of good quality it will not break off but bend double, and those portions of it to the depth of the notch on both sides will separate a little from the body of the bar, and split up like a piece of fresh ash stick, exhibiting a clear, distinct, silky fibre. If this appearance be produced on a cold bar, and it be then raised to a cherry heat, and bent first in the direction of the pile, and then at right angles to it, without cracking on the outer side of the bend, it is of excellent quality, neither red short nor cold short. A very small amount of phosphorus will make bar iron brittle, so small a portion as 0.5 per cent. having been found to make it cold short. Sulphur has been assigned as the cause of the short property of wrought iron; the presence of only 0.0001 of sulphur renders the iron very difficult to work at a welding heat.—*Scientific American*.

NOTICE.

Such of our Advertising friends as have received accounts from our office, and also Subscribers for current year, will kindly remit the amounts soon as convenient.

Letters relating to subscriptions and agents to be addressed to, and Post-office Orders, &c., to be made in favor of, the Publisher, Mr. PETER ROE, 42, Mabbot-st., Dublin, who will give the proper acknowledgment.

The Dublin Builder.

VOL. IV.—No. 53.

PENCILLINGS IN LANCASHIRE.

EXTENDING across channel the circuit of our notices of localities, in the confident assumption that "a pencilling," however hasty—if authentic—of our English neighbours' proceedings and position will both be acceptably regarded, and moreover be productive of information, we here present a few memoranda of what we saw, and of facts collected personally, during a brief visit this week to Liverpool, Manchester, and adjoining towns. Distress, we are sorry to record, is unhappily most general at present in Lancashire, Yorkshire, and other districts in England, where the manufacture of cotton is the staple trade. Very many vast establishments, hitherto affording employment to hundreds of hands, are altogether closed (owing to the unfortunate internal struggle in America, causing stoppage in the exportation of the feeding element—"the yarn"—for these hives of industry); and the majority of those still showing symptoms of vitality, are only on short work. Increasing demand for relief at the workhouses is a necessary concomitant to this state of affairs, and the guardians are fairly puzzled to make their available resources satisfy the applicants even partially. We are told that the Government of this kingdom will not interfere by force of arms with the belligerents, but duty and sense of humanity for the starving thousands in these two shires alone, would suggest that every nerve of diplomacy be strained to bring about an amicable adjustment, and ensure a speedy return of the supply. In Liverpool we saw crowds of able-bodied men, hitherto dock employées, collected about the Exchange, anxiously awaiting an answer to their petition to the merchant committee for permission "to break stones," and we were told that, as far as was possible, the request was complied with. In Manchester every branch of trade is affected, and on good commercial authority we can state, that monetary difficulties are unprecedentedly severe and general. The adjacent towns are similarly circumstanced, and in illustration we incidentally note that in Oldham—where we spent some few hours—the number of persons relieved during present week at the workhouse was 2,337, against 2,301 in the preceding; and the cost of out-door relief is increasing at the rate of £7 per week. As this—for its extent—is one of the most prosperous towns in the district, the condition of those where distress is most prevalent may easily be inferred from the foregoing figures. But having arrived at this point, we halt to jot down a few particulars of the town itself, reserving more detailed notice of Manchester, Liverpool, &c., for continuation. Oldham is a neat, well-built town—said to be of Roman origin—and of oblong shape, with one leading street, and is situated on an elevated site about six miles north-east of Manchester, and washed by a branch of the Medlock. As far back as the 13th century it was celebrated for its hat manufacture, but has since become eminent in the cotton trade, containing at present about 200 mills, worked by steam power, although some 80 years since there was not one in existence. Besides these are various iron and brass foundries, roller, spindle, and gas factories, and the vast concerns of Messrs. Platt, Brothers (the most extensive machinists in England), wherein constant employment is afforded to some two thousand hands. Foremost in importance are also the carpentry and joinery mills of Messrs. Andrew Schofield & Son, of which, being courteously permitted an inspection, we may speak specially. The premises occupy a quadrangular area, and comprehend a receding centre building, with projecting wings enclosing a courtyard, approached from the street thoroughfare through a principal gateway. At the rear rises a tall chimney-shaft, in connection with the engine-house, which contains a beam-engine of 120-horse power, by Messrs. Hick & Son, of Bolton. Of the many features in connection with these concerns worth noting, we may commence by remarking, that proprietors of similar establishments should take a hint from the very desirable

precautionary measures here adopted against accidents by entangling with the driving-straps, which are all contrived to be included in an underneath chamber, except where of necessity partially appearing above the floor of workshop, and in that case also they are well guarded. In one of the wings is situated the packing-case manufactory, in which we learn that Messrs. Schofield pursue an important trade—the other, as also the centre building, being devoted to the various departments of the mill, from the cutting of the balk timber, through its several processes of squaring, morticing, tenoning, mitring, &c., to the completion of the joinery ready for use, which, we may add, is effected *without* the application of sand-paper, either by hand or otherwise—the surface and arrises of the mouldings being turned off the machines with a smoothness and sharpness rendering same unnecessary. We were much interested in noticing amongst the several machines employed—one which to us at least is a novelty—viz., a single circular saw cutting double grooves. Many of our readers will doubtless find it difficult to reconcile this, but "seeing is believing," and we can vouch for its being a fact, the saw having been disconnected from the frame for our examination. The facility with which the sawdust is transmitted from the *locale* of the machines through shoots to the underneath chamber before referred to, and thence for fuel to the boilers, is also a peculiarity of arrangement, and must materially contribute to economy. Another obvious advantage to which our attention was directed is the absence of spliced straps, the laps on which, where employed, necessarily produces some degree of inequality, however small, on joinery work—Messrs. Schofield having substituted endless catgut bands instead. It is alleged by the proprietors that for the quantity of machinery in this mill the work is turned out with greater rapidity than elsewhere—some million and a-half feet lineal being produced from the planing machine alone, with the assistance only of a boy, during twelve months. Independent of the work in process of manufacture at the mill—which, without instituting comparisons, at all times odious, appeared of excellent finish—we had an opportunity of inspecting, a short distance from the town, a handsome apartment, of recent construction, with elaborately moulded and panelled wainscoting, which, together with the other carpentry and joinery throughout, were of Messrs. Schofield's manufacture. We are informed that large quantities of mouldings from this establishment are forwarded to various parts of Ireland, to the consignment of the proprietors' representatives, Messrs. Booth & Co., of Bride-street, in this city. The railway and canal accommodation in this town is very superior, and must have mainly contributed to its astonishing commercial progress during the last half century; the Lancashire and Yorkshire Company have *three* stations thereat, the Guide-bridge Company a *fourth*, and when the direct line to Rochdale now in progress is made, it will have *five*. Of the public buildings of Oldham the Blue-coat School, endowed by the late Mr. T. Henshaw—who first gave £20,000, and afterwards a like sum towards its establishment—is about the most remarkable, but there are also a Lyceum, a town-hall, several churches—of which those of St. Mary and St. Peter are the principal—public schools, baths, &c. The aspect of the streets is generally cheerful, red brick being in the predominant, and the commercial houses are not in some instances without architectural pretensions. In our next we shall resume the "pencilings."

Among the contributions from Rome to the International Exhibition are sculptural works by Gibson, Story, Harriet Hosmer, Spence, Gatlry, and Shakespeare Wood, and Roger's bronze gates for the capitol at Washington, which constitute a continuous history, and embrace nine subjects from the life of Columbus, the large semi-circular space on the summit being occupied by his triumphant figure planting the standard of Spain on the island of San Salvador. The doorposts and lintel, the rails and styles of the doors, are also enriched by beautiful sculpture of arabesques, intermixed with heads of historians and statesmen. The bronze casting has been executed at Munich, in deep golden coloured bronze. John Adams sends a statue of a boy playing at the favourite Roman game, "Elegia de Nuce." Macdonald's contributions consist of a mendicant and a bacchante. A beautiful statue is the Diana of Mr. Cardwell. By the same artist is also a group representing the venerable adage, *Omnia vincit Amor*—Cupid conquers Pan. The Americans will rejoice to see two national works by Mr. Mozier.

The recently invented "water gas" is rapidly taking the place of coal gas in America. According to the *American Gas-Light Journal* this gas, 73 parts of which are derived from water and 27 parts from oil, at 9 cents. per gallon, is in all respects better than coal-gas, besides the advantage of being very much cheaper.

An ingenious machine, intended to be employed in tunnelling the Alps, has been designed by the firm of Hawks, Crawshaw, and Co of Newcastle-on-Tyne.

BANTRY.

THE neglect of Irish works and improvements in general, and of our harbours and coast defences in particular, is a continual and admittedly very just cause of complaint with the inhabitants of this country. The above town has a bay, one of the noblest in the world, and of the utmost importance, both by reason of its geographical position with regard to the old and new continents, as well as for its extent and beauty, and the safety afforded to shipping.

It is about 26 miles in length, and varies from 5 to 8 in width, having deep water all over it, and free from dangerous rocks or shoals. At the end of the bay is the beautiful and world-famed scenery of Glengarriff, of which so much has been said and written that we will at present only speak of the harbour. It is sheltered like a pond with a good and safe entrance, and we know of no place either in England or Scotland better suited for the rendezvous of a yacht club. A long island encloses a safe and picturesque harbour at the extreme end of the bay, and having about six fathoms of water at a creek of which the town is built. Here there is not even a pier of the most commonplace kind for shipping accommodation, and vessels of from four to five hundred tons discharge on a natural rock; no attempt having ever been made to quay it, and alongside of this they lie with safety even in the roughest weather.

The town itself is in a very dilapidated state, having but two streets of any pretensions, which are rather cleanly kept, though there are no commissioners. Gas, which is being now so universally used in small towns, has not yet been introduced here; but we trust that the inhabitants will be speedily supplied with this inestimable benefit. A court-house, church, Roman Catholic chapel of large dimensions, and a convent, are the principal buildings, none of them having any pretensions to architectural beauty. Near the town is situated the mansion and tastefully laid out grounds of the Earl of Bantry, who gives a good deal of employment each year in building, &c.; he is, in fact, the only resident landed proprietor in the place. The property of the Earl of Kenmare extends close to the town, and embraces a large and fertile tract of country.

A bill has passed into law, and a company has been formed for the making of a line of railway which would come to within eight miles of Bantry; unfortunately the promoters have not money to mature the project. They have applied for a loan to the Board of Works, and, we believe, have been received rather favourably. If the Government consult their own interests they should not overlook this, as it would bring railway communication to so important a military post as Bantry Bay is. Should relief be given to the starving poor of those districts, no better method could be adopted without any expense, as the company only ask a loan—for which they offer three per cent.—to make a line of railway which is sure to pay a good dividend, as it passes through a rich agricultural district, and can be constructed for not more than £6,000 per mile. But continuing to speak of the bay, the principal feature of which we have not yet touched on, is the harbour of Berehaven, which lies at its mouth, about twenty miles from Bantry. It is formed by a large island, and is very capacious, being about seven miles in length, and averaging more than one in breadth. It has two entrances, both deep and wide enough for the largest vessels afloat to pass or even "beat" through. Captain Evans, R.N., in his report on this harbour, says:—

"I found deep water all over Berehaven, varying from 6 to 15 fathoms fine holding ground, and well sheltered both from wind and sea. The eastern entrance is very deep, having 19 fathoms all the way across it, and is of sufficient breadth for any vessel to beat in against a head wind, and if a ship could not get to sea from the western entrance, she could always get out of the eastern one as long as she could carry canvas. Bere Island is remarkably well calculated for either a naval or military depot, and Lawrence Cove is formed by nature for a naval arsenal. Docks to any extent might be constructed there at a very moderate expense, and vessels may be hove down close alongside the shore in perfectly smooth water in all weather, the rocky beach forming a natural quay. Depots of troops stationed at Berehaven would be in the best possible situation in the United Kingdom for embarkation to the colonies, whilst a great facility for removing them to or from any part of Ireland that might require their presence would be afforded by making Bantry the termination of the contemplated railway. Owing to the prevailing winds being from the south-west and west, a vessel leaving Berehaven would command the coasts of Spain, Portugal, and the Mediterranean, as well as be in the most desirable spot of departure for either the West Indies or America. Were Berehaven made a naval arsenal and military depot, or even were it made a packet station, it would be productive of very great advantage to the commerce of Great Britain, as merchant vessels would then be glad to resort to it, and many valuable ships and lives would be saved. I may, in conclusion, observe that Berehaven is well situated for steam communication with the south of Ireland and England; it is a harbour that, in a political point of view, should not be left unprotected, being the only one on the Irish coast where an enemy's fleet could well attempt

to run for. Were it connected by a railroad to Dublin, advantages would accrue to Ireland that few can possibly foresee the consequences of from the rapidly increasing trade with America, and the great natural advantages which Bandon and its vicinity afford for erecting manufactories by employing water as at Greenock to work the machinery."

It will be seen from the above-quoted high and disinterested authority the many advantages that would accrue from establishing a naval or packet station at Berehaven, as well as the suitability of the place, and the facilities for doing so. We now give some extracts from the correspondence of the late Duke of Wellington, while Chief Secretary for Ireland, 1807-9. In a letter to Lord Hawkesbury, giving his opinion on the best way for putting Ireland in a state of defence, he says:—

"All those who have considered this subject appear to agree in the following propositions, although they differ in opinion in question of detail:—That Ireland is assailable by an enemy on all parts of its southern, its western, and its northern coast. . . . There appears only one remedy for the evil stated in the first proposition. A system of fortification upon the coast of Ireland such as that which has been carried into execution on the coasts of Kent and Sussex, would not answer for many obvious reasons, even if the country could bear the expense; and therefore the best measure would be to establish a naval station at Bantry Bay. By the adoption of this measure you would at all times have a fleet on your most vulnerable point, and you would give to the coasts of this country the only general defence they are capable of receiving. I believe also that a naval station at Bantry Bay would answer for many general purposes."

What higher authority than the above could be put forward in favour of such a measure? and how much better would those suggestions apply in the present age of steam? If a railway were made to Bantry, and a steamer placed between that and Berehaven, troops from Dublin could be transported there in an exceedingly short space of time. In another letter to Lord Hawkesbury, in which he speaks of "the fleets in the south of Europe in a state of preparation for sea, and other appearances of an invasion of Ireland," he refers also to this place—"The information, however, upon the whole, is not to be disregarded, and I recommend the following measures to your consideration:—1st. Send a squadron into Bantry Bay, or, at all events, give directions that whenever the blockade of Brest is necessarily raised, a part of the blockading fleet should go over to Bantry Bay, instead of to Cawsand Bay or Tor Bay."

The Government, it would seem, but feignedly overlook the merits and importance of Bantry Bay, as the channel fleet frequently go in and spend some time there. When they do so, the prices paid for provisions are very high, and we think that it would be economy to establish stores and other conveniences there. On Whiddy Island there are three redoubts, and on Bere Island some forts and towers, but there is not a gun in any of them, and the buildings are in a state of decay. A French fleet has twice entered Bantry Bay: once in 1689, when they were met by the English fleet, under Admiral Herbert; the latter proved victorious, and took the captured vessels into Plymouth on the 7th May. The second time was in 1796, when they were dispersed by a storm, and two of them sunk in the bay.

The harbour of Cherbourg at the other side of the channel, and the new modes of naval warfare which follow from the use of steam vessels, make it absolutely necessary that the Government should do something towards defending the south coast of Ireland, and we trust that, while millions are being expended annually on English harbours, ours will not be so totally neglected. We hope to be afforded an opportunity of recording some progressive movements in this neighbourhood shortly.

AN IRISH PORCELAIN FACTORY.

AN extensive establishment for this purpose has been for some time in partial working order at Donegal, and we had occasion in an earlier number to refer to its existence; the following detailed account thereof by *Saunders'* correspondent will, however, be read with additional interest:—"A few yards out of my route I found myself at once in front of the porcelain factory erected by our worthy townsman, Mr. David M'Birney, with the aid of his resident partner, Mr. Armstrong. It is some time since your journal first opened its columns to an argument respecting the possibility of manufacturing china-ware in Ireland—the discussion of the question having arisen from the fact of kaolin (china clay) and felspar having been discovered on the Castle Caldwell property. I was aware that the discussion had led to some result, and that Mr. M'Birney was doing something towards practically testing the vexed question, but I was not prepared to witness the progress which had been made in this quiet and unobtrusively-working establishment towards settling the question of an Irish pottery manufactory. A water-wheel of 100-horse power—a fine specimen of Mr. Fairbairn's skill—finished with all the latest improvements, supplies the necessary power for the

purposes of the factory. The building is perfectly fire-proof, having wrought-iron floor, beams, joists, &c., and on the top is an immense iron tank supplied by the wheel, thus providing the water necessary for the preparation of the raw materials, whilst fire plugs are laid on from it to each floor, so as to give an immediate and abundant supply of water to each apartment should accident occur. The grinding machinery is of Staffordshire make, and I had much pleasure in inspecting the process of grinding both flints and felspar, that were being prepared for the making of Parian ware, one or two beautiful specimens of which I saw that had been manufactured from the Irish materials. Considering the advantages which this establishment possesses—with a beautiful site, enormous water power, the rarest and most valuable of the raw materials required for the Ceramic art locally obtained, water carriage at present, and railway transit soon to be provided, it seems to contain all the elements of success; and I sincerely trust that no unforeseen contingency or want of persevering energy may interfere to mar so fair a prospect. It must be understood that the factory is still unfinished. Only a few grinding machines have been put up. The materials, when ground, are exported to England at a large profit; but how much better would it not be to have them converted at home into those various articles of porcelain ware for the manufacture of which the factory has been built? Ten thousand pounds have already been expended in the erection of this fine building; but a large sum will be required to put it into thorough and complete working order. The proprietors can, at any time, find the means for this purpose; and believing, as I do, that the undertaking requires only to be pushed forward with energy to be attended with success, I must say that I am at a loss to account for the delay that has taken place in its completion."

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At the meeting on 17th ult., Mr. Godwin, editor of the *Builder*, by arrangement, resumed the discussion on "healthy dwellings," in the course of which he said, "it has occurred to me to examine into the condition of London, and some other of our cities and towns, and I can safely affirm that there are thousands of houses where health, decency, or virtue is scarcely possible. The devotion of some years to the subject must be my justification for thinking and speaking strongly on the matter. It is scarcely necessary to multiply proofs of the advantages that follow improved houses; but the decrease of mortality in model lodging-houses, published some time ago, should not be passed by. The effect of construction and overcrowding has, again, been remarkably shown in barracks and hospitals. . . . We have the deposition of medical officers of health that, in streets which had been distinguished by sickness, the improvement of the sewers and the proper drainage of the houses have been followed by diminished sickness. The probable sites of epidemics can be pointed out: unhealthy districts are obvious. . . . A strong public opinion is fortunately growing up on the subject, and our recent great loss will aid this. One result will doubtless be the improvement of the houses, not only of the labouring population, but of all classes. An assertion that I ventured to make some years ago, '*As the home, so the people*,' is beginning to fix itself in the popular mind. I find it, with humble satisfaction, the text of essays and the motto of associations. Widely admitted, it would be certain to produce good fruit. I would add to this,—

To drain and pave,
Means raise and save.

The connexion, perhaps, is not at once obvious, but it is, nevertheless, undeniable. Drainage alone will not do everything, but it is an important first step. . . . The efforts that have been made have had their effect in ridding many evil localities of fever; and recently it has been noticed that the same fever has haunted houses of a higher grade,—a fever which physicians have shown is caused by the emanations of decomposing matter,—the foul air, for example, of drains and cesspools. Of the evils of cesspools it is impossible to speak too strongly. The condition of London in this respect, at one time, was frightful. If the surface could have been taken off we should have seen a bubbling expanse of putridity and filth horrible to behold. Dante's rain brought scarcely greater horrors,—

'Stank all the world whereon that tempest fell.'

5,000 cesspools have been got rid of (says Dr. Letheby) in the city alone. . . . The great thing which we have to do in directing attention to this subject, is to get the public to understand this evil; that there is something better than that which they now use, and that the sooner they get it the better. With improved traps, and impermeable drain pipes, we then call for the proper ventilation of drains outside the house. The use of the rain-water pipes for that purpose cannot always be recommended. Chareol appears to offer the means cheaply and safely. . . . This brings us to the want of ventilation in our houses. All ought to insist on means being provided to admit fresh air involuntarily, and without draught, in every room, and to take away foul air. Nature arranges for vitiated air at once to sail away from us. We arrange to defeat nature, and as in all other such cases, suffer. There are various systems on the broad

principle of letting in fresh air to the fire-brick back of the stove, and so bringing it warmed into the room, and of providing an opening into a tube to take away the vitiated air. . . . Amidst bad domestic influences the spirits flag, the temper changes. Breathing bad air, suffering from the effect of damp, the world looks dark, the heart is heavy; cheerful effort is out of the question; kindly companionship is withered; and jangle and snarl take the place of mutual encouragement and healthful converse which develop the affections and powers. The occupants of such houses as we are contemplating do not *live*; they only pass their time; and a very bad time it not seldom is. Life, which should be a blessing, is often made a curse by an unhealthy house and its consequence—an ill-ordered home. Besides remedies of evils referred to, we want also more color in our houses, more pictures or prints, flowers, and a garden,—the effect of these on the spirits, and so on the health, the thoughts, and the habits, is greater than some imagine; and the same argument will apply in calling for the well-ordering and proper adornment of towns. I would maintain the usefulness of beauty as well as the beauty of usefulness."

The gentlemen who followed in a most instructive and interesting discussion (for which we much regret we cannot find space), each bore separate testimony to the practical value and ability of Mr. Godwin's remarks.

PROFESSOR S. SMIRKE'S LECTURE ON ARCHITECTURE AT THE ROYAL ACADEMY.—LECTURE 1.

(Continued from page 37.)

I THINK that it may be said with strict truth that exactly in proportion as this sculpturesque spirit pervaded architecture, so that art became deteriorated. It has been truly said by a high authority from this place, that painting and sculpture each excite our admiration the most when their special characters are kept most clearly defined, and when each art limits itself to the doing that which it is by its nature best qualified to do. Sculpture can very imperfectly represent distance, and should, therefore, avoid as much as possible attempting backgrounds. Painting, on the other hand, is peculiarly competent to produce such effects, by its power to represent space and distance; and therefore, the painter who places all his figures on the same plane, does not avail himself fully of the capabilities of his art. So, also, the painter abandons one of his highest privileges when he neglects to use color, whilst the sculptor who uses color (unless he does so with infinite caution, and exercises great moderation and abstinence), runs a serious risk of turning his statues into dolls.

Our own art is amenable to the same law. It is always most triumphant when it attempts to do that only which it is its special province to do. Thus then, to apply our remarks to the subject in hand, I should say with great confidence that the architect who so designs his building as to render it doubtful whether sculpture may not legitimately lay claim to the work as its own, is a traitor to his art, and despoils it of its birthright.

Many instances of such self-debasement present themselves among the works of the degenerate days of which I treat. It seems an ignoble task to hunt up for criticism and condemnation such examples of the abuse of genius; but such is the task I have imposed on myself. Italy well earned the honor of having been the garden in the soil of which were nurtured all the most beautiful productions of modern art; but it was unfortunately in that same too fertile soil, that with greatest exuberance sprang up those wild extravagances, which ultimately brought so great discredit on the arts, and on none more so, perhaps on none so much as on architecture.

I believe that it is to that *fatal facility*, which characterised the practice of all the three arts at this period, that we must mainly attribute their common decline. Wholly wanting in the thoughtfulness and deep feeling of Raffaele, and of some who preceded, as well as of some who immediately followed him, the painters sought, for the most part, gorgeous and showy effects, at the expense of all the higher qualities of their art; so, as I have already remarked, the sculptors of this declining age designed impetuously and executed dexterously, but the sentiment of their art had evaporated, and its greatness had gone;—and so, to return to our own art, the architects of the happier, and earlier period, were enthusiastic without wild extravagance, refined without pedantry, and always knowing well when to refrain from and when to indulge in the graces of decoration; none knew more thoroughly than the later, more advanced, quatercentists *how* and *when* to give a zest to their work by the most charming ornamentation; whilst none appear to have known better than they the value of breadth, simplicity, and even of perfect plainness, when their good taste and judgment prompted an abstinence from ornament. But I have on former occasions dwelt sufficiently on the merits of the masters of that great period, and have already endeavored to urge on you the careful study of their works. I name them now, that you may feel more sensibly the contrast presented by the architecture of the degenerate age which followed. It is my aim to deter you from the evil examples set us by the licentious

throng of the seventeenth century by holding up their errors for your reprobation and rejection. Through the ignorance of some, the contumely of others, and the loose habit of speaking common enough to most of us, the term "Italian architecture" is apt to be applied to buildings of the most diverse and opposite character. It is an instance of the same laxity of speech by which styles of the utmost contrariety, from the simple, austere, and honest architecture of the early Rhenish buildings down to the florid extravagances of Adam Kraft, have all been indiscriminately classed under the one large, unmeaning, and inappropriate term "Gothic." It is through the same thoughtless and perhaps ignorant way in which the general term "Italian" architecture has been customarily applied, that gross injustice has been done to works of the highest quality.

The vague and superficial knowledge, both of some of those who have written and of those who have spoken on our art, has too often led them to place under the same category the beautiful works of Bramante, Raffaele, and Giulio Romano with the truly barbarous architecture of Borromini, Fischers, and too many others. The Italians were, as I have already said, themselves the first corruptors of the Italian style; and among those corruptors Borromini stands out in strong relief as a prominent delinquent; for, as he was one of the most reckless practitioners, and one of the most sinful contaminators of style, so was he one of the most active and prosperous. Prosperous he truly was; for with that fatal facility on which I have been animadverting, he occupied a long course of practice in spreading over Italy a numerous and conspicuous progeny of ugliness. Prosperous, however, he was not to the end. By a kind of poetical justice which does not always attend upon the guilt of offending artists, he died miserably, the victim of jealousy and envy. Bernard Fischers was another instance whom I have adduced as one of the false lights of this vicious period. Vienna, to this day, is, in its public buildings especially, distinguished by the bad taste of Fischers, and I know no city so sadly disfigured by the school to which he belonged.

Milizia is a cantankerous critic, it is true, but he is perhaps justified when he condemns Fischers' triumphal arch at Vienna as "un capo d'opera di stravaganza." The wildest disciple of Borromini, he says, could not have invented a more capricious and irrational design.

I revert, now, to the question, what was the cause of this great and general degradation of art in Italy? It may be that the political and social condition of that country had for some time been degenerating; whilst other, more northern countries, were rising into wealth, and advancing in the political scale of Europe. Yet, it cannot be said that political preponderance will always be found on the same side of the balance as æsthetic excellence.

We might readily point, in the history of Europe, to notable instances of the contrary.

For example, I am aware of no wonderful development of artistic taste having accompanied the brilliant epoch of Frederick the Great, or the extraordinary political ascendancy of Charles the Fifth. Going back to an earlier period, we shall find that in mediæval times, when the social and political condition of Europe was very dark, and when, in the language of an old contemporary chronicler, "nobles and bishops built castles, and filled them with devilish and wicked men, and oppressed the people;" at that very period, foul, as it certainly was, with most of the vices which disgrace Christianity, a school of art existed which has been advantageously compared by many with that of the Greeks.

It is clear, therefore, that there are more subtle influences which will, at least sometimes, operate favorably for the development of art, besides the accumulation of mere material wealth and political power.

Neither will peace, alone, of necessity, bring æsthetic excellence among other blessings in its train, as we are very apt to say, and very willing to believe, when we would paint the horrors of war.

The Greek states, for example, brought the fine arts to a climax of excellence never since fully attained, although they were for ever engaged either in warring on each other, or in preparing and defending themselves against extermination from barbarian hordes.

So the Italian states, among whom art received its second birth, were constantly plunged in internecine wars. How often were the great masters of our art called away to superintend the erection of gloomy fortifications, and ponderous, unseemly, loop-holed walls, for the protection of those very cities which they were engaged in beautifying! How often were great and glorious works of art arrested in mid progress by the incursions of neighbouring rivals, or by the threatened devastations of foreign hosts, or by the exhaustion of the public purse consequent on these deadly strifes!

These instances, which might be greatly multiplied, are sufficient to show that a stormy political atmosphere is by no means of necessity inconsistent with the existence of a highly excited state of artistic ardour.

I would not, however, for a moment be supposed to pledge myself to the paradox that war is favorable to the cultivation of art. Very far, indeed, from that is the fact. All that I would wish you to infer from the remarks which I have just been making is, that the

arts have been found to prosper notwithstanding war. But there is one condition which I believe to be clearly and positively essential to the permanent well-being of the arts, and that is, public prosperity. I suppose it to be impossible to cite an instance of the general decay of the material interests of a country not being accompanied by a corresponding degradation of the fine arts in that country; whilst, on the other hand, the sound, social prosperity of a people will generally be found to be accompanied by an elevation of their standard of taste, as well as by a widely spread appreciation of the fine arts.

The proudest works of Mediæval France date about the period when St. Louis, by his wise government, raised the character and consolidated the strength of his country. In England, the rule of Edward III. marks the periods of the highest point of excellence to which Mediæval art reached in our country, and precisely that warlike and heroic period was the most brilliant in the political annals of our middle ages.

I need not do more than point to the age of the Medeci, in Florence, as the period most embellished by the fine arts, and as the period when the Italian Peninsula stood foremost as the most politically eminent among all civilised nations; and we have already seen, from the retrospect I have been taking of the architecture of the Italian Renaissance, that the debasement of the three sister arts was simultaneous with the decay of Italian political greatness. It is not for me to attempt to explain these coincidences. It needs a larger and far clearer view of the philosophy of history than that to which I can pretend, before I can presume to lay open the causes of these phenomena, the existence of which is all I can venture to assert.

Pelham, too, the inquiry into those causes would hardly profit us here, for it belongs rather to the domain of the political economist, than to that of the artist. No doubt every ingenious mind must feel an interest in these general views, but they can scarcely be expected to bear us much fruit, nor to afford us practical rules of conduct in our search after æsthetic excellence, a search which should ever be uppermost in the artist's mind, be he student or professor. To trace the progress—not the occult causes—of decay in our art, has been my chief object in the few desultory remarks which I have this evening addressed to you. It is but a sorry theme, and I may be blamed, perchance, by some for having lingered so long among these ruins of a fine art, and for having sauntered so long upon the banks of that stream of polluted art which deposited its slime over so wide a portion of Europe, and during so long a period; whilst I might, with so much more pleasurable a feeling, have been leading you on to admire beauty amidst the charms of a happier age. But it is my conviction that much benefit is to be derived from the bold and unhesitating denunciation of whatever we must recognise as faulty. There are sermons in stones; whether they be fashioned by the hand of a master, or rudely hewn by the chisel and mallet of a prentice hand. The diagnosis of disease is, in truth, best studied, not in the healthy, but in the disordered subject.

I have laid bare before you some sad cases of such disordered subjects this evening. It was, as you well know, the Spartan philosophy to deter the youthful mind from vice by exhibiting openly to the public gaze the unhappy and repulsive results of vice.

All that I ask of you is that you will note, and heedfully observe, these errors of our art, even whilst you pass them contemptuously by, and that you will study them well, for the mere purpose of propounding them as objects which neither love of novelty, nor the attractions of singular ingenuity, or of great technical skill, should ever tempt you to imitate or to repeat.

WHAT SAILORS THINK OF TURNER'S PICTURE OF "TRAFALGAR."—Probably about the same year (1808) Turner painted another view of the great battle, that George IV., for whom it was painted, presented in 1829 to Greenwich Hospital, where it still adorns the Painted Hall. It was never exhibited. It is a broadside view, and represents the Redoubtable as sinking, though it did not really sink until the next night. Turner has, in fact, with epical grandeur crowded together the events of several different hours. For instance, he makes the telegraphic message, which went up at 11.40 a.m., going up at the same time that the mizenmast falls, which snapped at about one p.m., and Achilles burning, which did not catch fire till half-past four. The picture is a bad composition in point of art, and is much disliked by sailor critics. Nelson's favourite captain, Sir Thomas Hardy, said of it, "It looks more a street scene than a battle, and the ships more like houses than men-of-war." An old Greenwich pensioner said of it, "I can't make English of it, sir; I can't make English of it; it wants altering." Another tar, vexed at seeing a visitor pore over it, remarked, "What a Trafalgar! it is a deal more like a brickfield. We ought to have had a Huggins!" Now, of course, these rude minds could have no true judgment about art, which is a science, and not an instinct; but still, I think that it proves that the picture contains some great errors. Turner sacrificed too much truth in this instance to his desire to paint an ambitious and comprehensive picture.—*Thornbury's Life of Turner.*

ON THE ESSENTIALS OF A HEALTHY DWELLING AND THE EXTENSION OF ITS BENEFITS TO THE LABOURING POPULATION.*

In proceeding to point out the circumstances conducive to the healthfulness of a dwelling, some will be named which cannot be strictly termed "essentials," inasmuch as their absence may be compensated for. Such is the case where localities, though not elevated, have a good soil and are well drained. It may, perhaps, appear scarcely necessary to add that the healthy state of a dwelling will not be insured by any one, or even by the union of several of the features essential thereto, in the absence of others which are of equal importance.

The condition of "healthy," in regard to dwellings, arises out of a combination of circumstances, which comprise—

1. Those appertaining to the locality, including its soil, a free circulation of pure air, an efficient drainage, an ample supply of pure water, and a good aspect.

2. Those which are structural.

8. Those which depend mainly, though not wholly, on the occupants themselves—external and internal cleanliness, and a proper use of structural arrangements.

1. In regard to locality. High and dry situations, having a free circulation of air, whether occupied by groups of buildings, as in towns, or by isolated dwellings, as in the country, are proverbially healthy; whilst those which are low and damp, or surrounded by confined air, are the opposite. Experience, afforded by the state of troops when encamped, or when in permanent barracks or in hospitals, is conclusive on this point. It is a known fact that the mortality of troops in Jamaica has been diminished from 120 to 20 per thousand by their removal from the plains to the hills; and it is well ascertained that ague, dysentery, and fever prevail in localities where the surface of the ground is naturally wet and insufficiently drained, or where there exists an accumulation of decaying matter, of which one sure indication is the presence of an abundance of flies. Dampness of situation is also productive of mental depression and bodily feebleness, which excite a craving for intoxicating drink. The embosoming in trees, or any other obstruction to a free circulation of air immediately round a dwelling, is prejudicial to health, and should, therefore, be avoided.

A soil of gravel is unquestionably the most healthy, and, next to it, one of sand. Clay soil, which, from its non-porous nature, retains the rainfall, is a frequent cause of the dampness so prevalent in the lower storeys of houses in many localities—an evil felt as much in some which are elevated as in those at a lower level, and a fruitful source of sickness amongst servants, as well as the occupants of small houses, whether in towns or in the country. The precautionary measures which should be adopted when the soil is of clay will be noticed under the head of construction. A soil of chalk is usually attended with the disadvantage of its being necessary to sink a considerable depth for water; whilst its chemical properties, imbibed in the process of filtration, are injurious to some constitutions. Tanks or reservoirs for storing rain-water are, in such cases, often the most suitable expedient.

Loose soil close to a house is a frequent cause of damp, which might be remedied by a flagging of stone or asphalt, and in many situations a dry drain ought to be formed round the building. Care should, therefore, be bestowed in regard to the surface of the ground about a dwelling, as well as in the selection of its site.

Drainage of the Soil and Surface.—Wherever dwellings are built on naturally wet ground it is essential to their being healthy that ample provision be made for draining the soil, as well as for ordinary surface drainage and for the carrying off of surplus fluid from the house itself. The necessity for this description of drainage is generally more manifest in the country than in towns, their gradual formation and progressive increase having been generally accompanied with surface drainage under some form or other. Good surface drainage is, however, peculiarly necessary in towns built on an uneven surface, as is the case with the metropolis, which stands on low hills in the midst of an imperfectly reclaimed swamp, partially underlaid by a stratum of peat. The lower levels on either side of the Thames, where the drainage has been most inefficient, were much more severely visited by the cholera than the higher parts of the metropolis.[†]

House Drainage.—The providing efficient means for house drainage, as well as a good surface drainage, is a duty which, in the case of towns, obviously devolves on the public authorities. The consequences of a past neglect of this duty have been remarkably manifested at Windsor, where the prevalence of fevers and choleric complaints having led to an investigation, the drainage of the town was

found to be very defective, and without any proper ventilation to carry off the gases which form in the sewers; whilst, on the contrary, at the Castle, a separate and perfect system of drainage having been provided, no disease existed. The case of Bedford might be cited as another instance recently before the public. House drainage, should, as far as possible, be kept without the building, although the valuable modern improvement of glazed earthenware tubes with perfect sockets has greatly diminished the risk of an evil formerly so prevalent. Especial care ought to be taken that the pipes which discharge into them are properly trapped, in order that they may not become a medium for the escape of foul air into the dwelling.

Cesspools under basement floors, so common formerly, have been the cause of sickness and deaths innumerable. During the cholera in 1849, to my knowledge, several cases wholly traceable to this cause occurred in one house. Whenever these latent sources of mischief are discovered, they should be removed as quickly as possible. In many houses of the first magnitude, both in the metropolis and in the country, which are not of recent construction, this evil exists, as well as that of defective drains, causing the ground under the house to become sodden with fœtid matter. The gases which originate in these places, and diffuse themselves over the dwelling, constitute one of those conditions of local impurity which exercise a powerful influence when the state of the atmosphere is favourable to an outbreak or spread of cholera, fever, or other kindred complaints. The abolition of cesspools within all dwellings is therefore a sanitary measure of the first importance.

Pure Water.—For an ample supply of pure water, one of the most important accessories to a healthy dwelling, the public authorities should, in the case of towns, be held responsible. The contamination of our rivers by their being unscrupulously, and at the same time most wastefully, made the receptacles of sewage, has rendered them very generally incapable of supplying the neighbouring population with pure water. Fully admitting the improvement which, in respect to its supply of water, has taken place in our own metropolis, it still remains far behind the metropolis of the Roman Empire, and even many of its provincial cities. Those who have traversed the Campagna di Roma can never forget the gigantic aqueducts whose ruins proclaim how abundantly and at what cost Rome was supplied with water. The practice which has to such an extent prevailed in our towns of obtaining water from wells, sunk not unfrequently near to a churchyard, has been very prejudicial to health, though its sparkling appearance and freshness to the taste might lead to the contrary supposition. Its impurity is generally caused by an infiltration from some neighbouring drain, cesspool, or other deposit of putrefying matter. Many such instances in the metropolis might be referred to.*

For dwellings in the country good drainage and ready access to pure water are not less essential than they are in towns, and they ought, therefore, to be made the subject of deliberate investigation before the locality of a dwelling is decided on.

The aspect of dwellings is often greatly dependent on local circumstances, and has an influence on their salubrity which is too much overlooked. In preference to all others, a southern aspect should be chosen, and where this is unobtainable, one inclining either to the east or to west, so that the rays of the sun may enter at some part of the day. Rooms to be chiefly occupied in the height of the summer are exceptional, though in such cases I should give the preference to an eastern or a north-eastern over a due northern aspect. In towns the difficulty of obtaining a sunny frontage may frequently be great, if not insurmountable, but the importance of having the sun's rays within the dwelling for some portion of the day, especially in rooms occupied by children or by invalids, should never be forgotten. I could point to a large convalescent asylum in the country which is so arranged that the spacious gallery used by the patients for exercise during the greater part of the day is without the cheering and warming rays of the sun. Such defects tend to defeat the main object of the institution, and are a discredit to all concerned in the building.

The structural features essential to a healthy dwelling have now to be considered. In pointing them out I shall aim at the same brevity which has characterised my remarks on those appertaining to locality; and not doubting that your own recollections will supply the corroborative passages which might be adduced from Vitruvius, from Alberti, and other eminent authorities, I abstain from quoting them, in order to avoid unnecessarily encroaching on your time and patience.

To secure the healthy condition of a dwelling its structure must be—1, dry; 2, warm; 3, the number and area of its apartments

* Read at the Royal Institute of British Architects by Henry Roberts, F.S.A.
† I have the authority of Dr. Farr for stating that, if the mean of cholera epidemic of 1848 and 1849 in London be taken, nearly 11 per 1,000 of those living under 10 feet of elevation died, to 1 per 1,000 of those at the highest elevation; and that, if London be divided into terraces of different degrees of elevation, the mortality from an epidemic of cholera is, in round numbers, inversely as the elevation.

* One was recently mentioned to me by the medical officer to the General Post Office as having been the cause of much internal derangement to several of the employees in that establishment, and which had led to his recommending the use of the patent carbon filter. In late reports of the Registrar-General reference is made to a well at Sandgate as containing 40.96 grains of impurity per gallon; and in another at Hampstead as containing 53.60 grains, whilst the water from Loch Katrine recently brought to Glasgow, at a cost of £1,500,000, contains only 2.35 grains. The water supplied to London by six of the leading companies were found lately to contain 17.84 to 21.68 grains.

must be in proportion to the number of their occupants, and due provision must be made for all the requisites appertaining to daily life; 4, it must be well lighted; 5, it must be properly ventilated, and be free from noxious vapours of every kind.

1st. In order to a house being dry, it must stand on a dry foundation; and where this is not otherwise obtainable, artificial means should be adopted, either by forming a stratum of concrete, varying in depth according to circumstances, but never less than 12 inches, by a bedding of slate in cement, or by a bed of asphalt laid through the whole thickness of the wall under the floor level.

The lowest or basement floor should be raised not less than about 8 inches above the external surface, and if the floors are of wood, the ground beneath them ought to be excavated, so as to give a clear depth of not less than 12 inches, which should be ventilated by means of air bricks, built in the external walls.

Floors of stone or of slate should either be hollow, resting on brick courses, or be laid on a dry bed, prepared for the purpose, which is also essential in the case of brick or tile floors. In some parts of the country lime and sand floors are pretty generally used for cottages, and when properly made with a dry substratum are said to last upwards of forty years. I have used Portland cement for the floors of living rooms in fireproof dwellings, but in places where there is much wear stone is preferable. Bed-rooms ought, in our climate, when not matted or carpeted, to have boarded floors.

External walls must be weather proof, of sufficient thickness to secure dryness and warmth. On the facilities for obtaining a good and non-porous material may depend whether brick, stone, or flint be used; whichever it be, good mortar is essential to dryness. In some places concrete, pisé or cob, with an external facing of plaster, or rough cast, may be employed with advantage, provided the foundation be dry, and the roof project sufficient. Hollow walls conduce greatly to dryness and warmth; they may be formed either wholly of brick, or externally of one of the other materials before named and be lined with brick or tile, a small hollow space being left between. The same advantages are desirable from the use of hollow bricks, and they are also well adapted for the lining of walls. A glazing on the external surface of brickwork is an effectual preventive of damp, and it is to be regretted that suitably glazed bricks are not easily obtainable at a moderate price. Their smooth surface is a great recommendation for internal work, on account of its non-retaining properties.

For the covering of roofs slate has with us so many recommendations that its general adoption may be readily accounted for; the evils attendant on its use arising from changes in the temperature should be particularly guarded against by boarding, felt, or by double plastering. Tiles are generally found to be warmer in the winter and cooler in the summer than slate, and requiring less lead are in that respect more economical. Projecting eaves should invariably have gutters, to prevent the drip which is often the cause of damp in the walls and foundations; the same evil too frequently arises from a stoppage of the rain-water pipes consequent on their being either too small, or their heads being unprotected from the intrusion of birds' nests, leaves, &c.

For the roofs of town buildings more particularly, a fire-proof construction,* such as was described in my paper of 21st January, 1850, has many obvious advantages to recommend its general adoption. But the practice, so extensively prevalent, of forming rooms for servants in the roof has an opposite tendency. In reference to fire-proof constructions I would take this opportunity of recalling a suggestion in a paper read by my friend Mr. S. Smirke, 5th November, 1860, "On the Use of Coke," which, from its lightness, appears to be equally suitable for the purpose of vaulting, as the volcanic scoria or pumice known to have been thus applied in many important buildings in Italy and Sicily.

When the immense destruction of property caused by fire, and too often accompanied by the loss of life, is considered, the question of an efficient system of fire-proof construction generally applicable, appears to me to merit the very serious consideration of the Institute of British Architects, and I, therefore, venture this passing remark, though the suggestion is not immediately connected with my subject.

Wood of an inferior quality, or unseasoned, when used in any part of a dwelling-house is a false economy, whilst the cracks and shrinkages caused thereby are often prejudicial to health.

Lead, a material which enters into the construction of most dwell-

* I adopted the hollow-brick fire-proof construction here referred to, in the roof and floors of the two ranges of model dwellings for families built in Street-ham-st., Bloomsbury, and in Portpool-lane, as well as in the lamented Prince Consort's model houses at the Exhibition of 1851. Recently the efficacy of the mode of construction was tested at the Street-ham-street houses by a tenant, who accidentally set fire to the woodwork of his apartment, to which the fire was limited. Hollow brick, with wrought-iron girders, are now very extensively used for floors in Paris. Thirty years since, when constructing Fishmongers' Hall, I used over the kitchen and in some other places, a vaulting of earthen pots, hollow bricks being then scarcely known, though they have been found in the remains of Roman buildings in this and other countries.

lings, should be used with great caution for pipes which convey drinking water, and ought to be dispensed with altogether for cisterns, excepting those for the service of closets, on account of the injurious effects produced by the chemical action which frequently takes place when the water in them is soft. Iron properly varnished or enamelled, may be substituted for both purposes; and for cisterns, slate is very suitable. The offensive and unwholesome smell which often proceeds from sinks of lead or ordinary stone, renders the substitution of either of slate, or glazed stone-ware, or of enamelled iron, very desirable.

2. Warmth.—This in a dwelling depends not only on its aspect, its dryness, the materials used, their proper application and substance, as I have already noticed, but also on the structural plan, particularly on the relative position of the doors and fireplaces, as well as of the windows and spaces for beds, which should be so contrived that the occupants will not be exposed to draughts. With all our regard for comfort, it is surprising that we do not more frequently endeavour to modify the effects of our variable climate, by the use of double sashes, which are so common in many parts of the Continent. This would be a means of retaining more of the small portion of genial warmth which passes into the room from our wastefully constructed open fireplaces, a subject on which, in connexion with the artificial warming and ventilation of dwellings something more will be said hereafter.

3. The number and dimensions of the apartments essential to health in a dwelling must be proportionate to the number of its occupants, and suitable provision must be made for all that appertains to a well ordered domestic life, not only of the master and mistress as well as of the children, but also that of the servants, whose health and morals it is the duty of their employers to care for.

The amount of space required for health being greatly dependent on efficient ventilation, it will be considered under that head. In most dwellings the scale of accommodation chiefly depends on the means and circumstances of the occupants, in which the variety is so great that I shall not attempt giving anything but a brief outline of what may be termed the minimum provision which ought to be made for a family consisting of parents and children of both sexes, belonging to the labouring class, undoubtedly the most numerous section of the community. A labourer's dwelling in the country should have a small entrance lobby, a living room not less than 150 feet in area, a scullery of from 60 feet to 80 feet in area, in which there should be a stove or fireplace for use in summer, as well as a copper and sink; there should also be a small pantry. Above should be a parents' bed-room of no less than 100 feet area, and two sleeping-rooms for the children averaging from 70 to 80 feet superficial each, with a distinct and independent access. Two of the sleeping-rooms at least should have fireplaces. There ought also to be a properly lighted, ventilated, and drained closet, as well as suitable inclosed receptacles for fuel and dust. The height of the rooms, in order to their being healthy, should be scarcely less than 8 feet, and even 9 feet would be desirable but for the extra expense. With a view to ventilation, the windows should reach nearly to the ceiling, and the upper part be invariably made to open. In windows which have transoms as well as mullions, some of the upper compartments may be hung on centres for this purpose.

It may be deemed almost Utopian to indulge the hope of seeing such accommodation as this placed within reach of those of the labouring population who are doomed to reside in towns; but those who for several years have been striving to place the benefits of a healthy dwelling within their reach, whilst knowing by experience something of the numerous difficulties to be overcome, and being fully aware that, in many cases, it may be impossible to accomplish all that is desirable, ought not on that account to be daunted in the pursuit of an object of such great and wide-spread importance.

In returning from this digression to the structural features of a healthy dwelling, I would point out the great importance of direct external ventilation and light to all waterclosets, including those for servants' use. It is obvious that constructive defects here must be a very serious evil. The pipes to waterclosets should be protected from the effects of frost. I notice also that it is of much importance the chimneys should draw so that the smoke will properly ascend; when it does not, the air is greatly contaminated by its escape into the dwelling. The smoking of chimneys, if not caused, as it often is, by the want of sufficient air in the apartment,* or by bad management in the first lighting or in the putting on of fuel, frequently arises from the proximity of more lofty buildings, or of trees, and too often from a defect in the construction, such as being too large to ensure a continuous upward current—an evil which may be sometimes cured by a contraction of the throat. For all ordinary chimneys, flues 9 inches square, or which is decidedly preferable, 10 to 11 inches diameter, are quite sufficient. Kitchen chimneys are exceptional.

* The late Mr. Thomas Cubitt told me that he had frequently cured smoky chimneys, in houses of his own building, well known to be amongst the best in London, by an imperceptible admission of a little air over the rooin doors, the woodwork fitting so closely that sufficient air could not, when they were closed, gain admission to the room.

4. Light well diffused over all parts of a dwelling is essential to its being healthy. A dark house is not only gloomy and dispiriting, but is always unhealthy. We know on high medical authority that "the amount of diseases in light rooms as compared with dark ones is vastly less." Light ought to be diffused over the whole dwelling, so that no dark corners be left to invite a deposit of that which is untidy or offensive. Happily the motives which in times past led so much to an exclusion of the light of heaven no longer exists, and though ages may pass ere evils resulting from a vicious legislation are entirely swept away, yet the removal of the tax on windows and of that on glass must, amidst much to discourage those who have long and zealously laboured in the cause of sanitary amelioration, be regarded as most valuable concessions in its favour.

5. Ventilation and Artificial Warming.—These are questions of vital importance in regard to dwellings, though, judging from the neglectful indifference of multitudes, their value is far from being duly appreciated by the educated, and even by some in the scientific classes of the community. Were it otherwise, the closeness perceptible on entering many of their dwellings, the oppressive heat of the rooms, the sickening fustiness in the apartments occupied by the servants, and too often in those of the children, would certainly not exist. When the numbers of hours passed within doors by every human being in a civilized state is considered, it will be manifest that the breathings of vitiated air for so large a portion of the twenty-four hours must be as injurious as living on unwholesome food.

(To be continued.)

MONUMENTS OF ANCIENT TYPOGRAPHY.

(Continued from page 42.)

It is quite possible that under some of the provisions of this treaty, he was authorised to transport with him types and even workmen to this country; for it must be remembered that his immediate successors in London were foreigners, who were naturalized before they began to print as masters. The first book bearing the name of Caxton is now considered to be the "Recuyell of the Histories of Troye," which is without a date, and it is supposed to have been executed abroad between the years 1464 and 1467. It must be, however, remembered by all for whom the exhibition of this evening has any attractions, that the first work printed by Caxton, bearing his name, with the addition of a place and a date is "The Game and Playe of the Chesse," produced in 1474. So intimately is this date supposed to be connected with the name and fame of Caxton, that the mysterious mark which is found placed between his initials in his typographical device, has never been satisfactorily explained otherwise, than as a chronogram of the two arabic numerals, 7 and 4, as they were written at the period. This device, attached to a very beautiful fac-simile of the book on the Game of Chess, was published by Mr. Vincent Figgins, for the benefit of the Printers' Almshouses, in 1855. The whole number of books which are at present known to have been produced by Caxton, is upwards of sixty; and as almost the whole of them are in his own language, he may well be regarded as the first English printer. The last of his dated works are "The Æneid of Virgil," and, with singular propriety, "The Arte and Crafte to knowe well (how) to Dye;" both printed in the year 1490. He died in the parish of St. Margaret, Westminster, of which he appears to have been an active and respected member, in the year 1491-1492. The vestry book for the date contains an entry of 6s. 8d. paid for four torches at his funeral, and 6d. for tolling the bell; but the record, extending from 1496 to 1498, mentions the printed books that were bequeathed to the church by William Caxton.

An entry on the patent-roll of the eleventh year of Henry VII. states that Wynkyn de Worde, whose name is always so intimately connected with that of our first printer, came to England from the Duchy of Lorraine. He is described as being "*Fabricator Impressorum Librorum*," and he was naturalised April 20th, 1496. In continuation of the romance published by Atkins, it has been affirmed by Anthony à Wood and Thomas Hearne, that Wynkyn De Worde came secretly to England with Corsellis and Turnour, and had a printing-office in Oxford, near Oriol College, in Grope-lane; which thence came to be called Wynkyn-lane, where "these outlanders" kept the art of printing to themselves. But Dr. Dibdin properly adds, "it is a well-known fact that not a single book executed by De Worde was ever discovered with a colophon describing him to have printed at Oxford. On the contrary, there is a succession of the strongest evidence—namely, of upwards of four hundreds works printed by him, that his business was exclusively confined to Westminster and Fleet-street." Wynkyn De Worde appears really to have been employed by Caxton, in whose house at Westminster he first printed, and to have been patronised by Margaret of Beaufort, the mother of Henry VII. From Westminster he removed to the sign of the Sun, in Fleet-street, against the Conduit. The earliest book which can be positively assigned

to him is the "Liber Festivalis," dated 1493, and the latest is an edition of Æsop, bearing date the year 1535; at which time, however, he must have been dead, as his will was proved January 19th, 1534 (1535). I cannot avoid noticing to you that this will is a genuine printer's testament, for nearly all the legacies in it are "in books," varying in value from xx shillings to xx marks. There are not any of the ancient English printers who are more distinguished by the number, variety, and curiosity of their productions, than Wynkyn de Worde, for religious works and legends, grammars, and school-books, histories and statutes, and especially romances and curious old poetry, all came from his press; and the specimens described by Dibdin amount to 407. I have placed before you for exhibition five of his volumes:—

"Dives et Pauper: Enprented at Westmonstre: 1496."

"The Ordynarye of Crysten Men: Enprented in the Cyte of London in the Flete-strete in the Sygne of the Sonne: 1506."

"A Morning Remembrance had at the Moneth's-Mynde of the noble Pryncesse Margaret, Countesse of Rychemonde and Darbye: 1509."

"The Cronycle of Englonde, with the Frute of Tymes. 1518."

"Legenda Aurea: that is to saye in Englysshe the Golde Legende: for lyke as passeth Golde in value all other Metallys, so this Legende excelleth all other Bookes. Fynysshed att Westmynster, the xvij daye of August, the yere of our Lorde m.ccccccxxvii. Imprinted at London, in Flete-strete at the Sygne of the Sonne."

Richard Pynson is the next eminent English printer in the order of time, and his patent of naturalization shows that he was a Norman by birth, and that he came to England in 1493. He also was employed by Caxton, whom he calls his master in the prohemie of one of his volumes now placed before you, "The Tales of Canterburie." It is without date or place, but Dibdin says that it was probably the first book printed by Pynson. The first two impressions of Chaucer's Tales were printed by Caxton; and he had evidently prepared this text for an improved edition. "This book," says Pynson, "was diligently oursene by the polittike reason and ourright of my worshipful Master William Caxton, according to the entente and effecte of the said Geoffrey Chaucer." From the rudeness of the types used by Pynson, and the early period at which he came to England, it has been conjectured that he was a more ancient typographer than even Wynkyn de Worde. You may observe this coarseness of his letters in the copy of his edition of "Dives et Pauper," which I have now laid before you, printed in 1493, being the first of his books with a date, when he was dwelling "at the Temple-barre of London." There is also a copy of his "Shyp of Folye," printed in 1509; which is the first impression of Alexander Barclay's English text. And there is a fourth specimen of his printing exhibited in the law-tract entitled "Diuersitez de Courtz, et leur iurisdiccions," printed in 1526, at which time he called himself "printer to the Kynges noble Grace." It is the smallest book which he ever produced.

Julyan Notary began to print in England as early as 1498, since that date is found attached to an impression of the Salisbury Missal executed by him in Westminster, in connection with John Barbier, a skilful French typographer. But the specimen of his press which I have placed before you, is "The Golden Legend—accomplished and fynysshed at Tempell-barr, xvi day of Feuerer: the Yere of our Lorde a Thousande, cccccc.ij." It is a very curious book, though it is far from possessing any typographical beauty; but it has a large and grand frontispiece engraven on wood, representing the Divine Personages and beatified Saints in glory. It is remarkable that Dibdin supplies the description of this edition of "The Golden Legend," solely from Herbert, as though he had never seen it himself, when he published the second volume of the "Typographical Antiquities," in 1812. There is a fine copy of it in the library of the London Institution.

In the grant of armorial ensigns given to Thomas Berthelet, which is yet extant in the Herald's College, he is styled "Esquier, Gentillman;" and he was the second typographer after Pynson, who was made the king's printer, for which his annual fee was £4 sterling. This seems to have been the reason that so many of the volumes which he printed were law-books, and that he is the best known by them. But the other productions of his press were also numerous and varied in their subjects, as may be seen by the specimens which I have exhibited. One of these is Sir Thomas Chaloner's translation of "The Praise of Folie: a Book made in Latyne by that great Clerke, Erasmus Roterodamus;—Imprinted in Flete-strete, in the House of Thomas Berthelet, cum privilegio solum—1549." My other book printed by Berthelet is his edition of John Gower's "Confessio Amantis," executed in 1554. The earliest authentic date of his printing is 1530, and he died about Christmas, 1555.

The great eastern dome of the Exhibition building has been completed, as regards the constructive portions, and the centering is removed.

UNITARIAN CHURCH, STEPHEN'S-GREEN.

A SHORT time since we announced that the designs for this edifice submitted in competition by Messrs. Lanyon, Lynn, and Lanyon, architects, had been adopted. Estimates for the erection have since been obtained, and Messrs. Hammond, of Drogheda and Dublin, builders, were declared contractors. They are now proceeding with the building, which—as may be judged from our illustration herewith—promises to be, when completed, a great acquisition to the architectural features of this city. The external walling will be of squared granite rubble, and the decorative portions, both external and internal, of Bath stone, from the Box quarries. The plan is somewhat peculiar, and presents a church of 7 shape, with nave 55 feet 6 inches by 28 feet, one side aisle 14 feet in width, and a one-arm transept. Through the principal doorway shown on elevation approach is obtained to the church by a spacious ascending flight of steps, as also by a descending flight to a portion of the basement storey, comprising committee-room, &c. The other doorways lead respectively to the male and female schoolrooms, each 28 feet by 24 feet, in basement also, and to the gallery, which occupies the transept. An engraving of the interior, at present in course of preparation, will illustrate its features. The columns shown on the pinnacled turret will most probably be of polished limestone, which would contribute increased effect. A commodious residence for caretaker is provided at the rear. The expenditure will be about £5,000.

SANITARY REFORM COMMITTEE.

A MEETING of this committee was held in the hall of the Regular Operative Brick and Stone Layers' Society in Cuffe-street, on the evening of the 21st ult., and a number of the members of the trade also attended. Dr. Metge Barry, being called to the chair, said, that the purpose for which this influential meeting had been convened was one of the highest importance, and the first step towards securing sanitary improvement should necessarily be a complete system of registration of births, deaths, and marriages, which would ensure a knowledge of the exact population of the cities and towns throughout Ireland, and the means of arriving at an acquaintance with the causes which led immediately or otherwise to the termination of human existence. Ireland was the only part of the United Kingdom, and, in fact, almost the only country in Europe, in which there was no such system; and that even the partial and imperfect registration of deaths that has hitherto existed, was of great service to science and to the public. The Chairman then referred to the bad condition of the dwellings of the poor, and urged the necessity for their improvement; and remarked that in this movement they should apply themselves individually with energy to the attainment of the object in view.

Mr. M'Evoy, the zealous and efficient honorary secretary, explained most comprehensively and lucidly the objects of the meeting, and pointed out the many advantages arising, especially to the poorer classes, from a registration of births, deaths, and marriages. A registry of deaths with the causes conducted to sanitary improvement, and enabled medical men to take measures for counteracting the spread and effect of epidemic diseases. He stated that the committee which had been formed in Dublin were progressing satisfactorily—they had collected a great deal of information—they had obtained a large amount of popular support, and had communicated with several members of parliament. From several of them letters of encouragement had been received, and Mr. Gregory had pointed out many evils to which the poor Irish in England were subjected, from the want of a proper registration system in Ireland respecting them. After expatiating upon the importance and advantages of registration, and stating that the committee desired to obtain the fullest possible amount of popular support, so as to insure success, the speaker concluded his address amid loud applause.

Mr. E. W. O'Mahony, previous to moving the first resolution, stated that, owing to a proper system in London, fewer died there in proportion to the population than in Dublin. Although in a similar state of circumstances the proportion of deaths ought to be greater in the former city because of the vast multitudes that were living in it, in Dublin the proportion of deaths amongst the poor was greatly increased, owing, amongst other causes, to the bad sanitary state of their abodes. He strongly urged the necessity for cleanliness in their homes and their clothing. He referred to the bill brought in by Sir Robert Peel for registration, and said the people would give their support to any proper measure on the subject.

Mr. Martin Burke moved the next resolution to the effect, that Ireland was the only country of any degree of civilization in Europe

suffered to remain unprovided with this important measure, and in favour of a good and satisfactory law of registration for Ireland. He expressed his desire to give this measure his support because he believed it was calculated to benefit the working classes, of whom they had an excellent specimen afforded in the respectable assembly of the brick and stone layers congregated in the body of the hall on that occasion. Mr. Burke concluded by introducing Dr. Ryan, an Irish medical gentleman who had been practising in London for twenty years, and was intimately acquainted with the working of the registration system there.

Dr. Ryan then stated, that in England no person could be buried until the medical attendant—a properly qualified practitioner—gave a certificate of the time of death, the cause and the duration of the sickness, with other particulars; that for the progress of sanitary reform in England and in London especially, the public were most indebted to the members of the faculty whose avocations presented facilities for witnessing results arising from neglect of sanitary observation. His observations elicited cordial applause.

Mr. Glynn (a member of the committee and one of the society) moved the next resolution and said, that although he was not an accomplished speaker, he knew when anything was not plumb, and that it required but very little argument to show that there was some work here that was out of plumb and should be made straight.

The Chairman then called on Mr. Lyons, the proprietor and editor of the DUBLIN BUILDER, to address the meeting.

Mr. Lyons on rising to do so was greeted with much cheering, and said, that he experienced great pleasure in taking part in the present highly important movement, and in associating himself with the committee, which was pursuing its labours so zealously. Their excellent chairman, who had proved himself so well entitled to the honourable position he occupied, had reminded them that "individual" energy was necessary for the development of this project, and he (Mr. Lyons) feeling under the circumstances in which he was placed as the conductor of a journal devoted to sanitary improvement, and the cause of "progress" generally, he might especially appropriate the allusion to himself, and explain how far he was prepared "individually" to assist this project. The gentleman who had preceded him had very ably treated the statistical part of the question. Statistics were very valuable, no doubt, in the elucidation of facts and theories, but they were useless unless practical effect was given to the convictions that they supplied, and he should pass them by for the present; but he (Mr. Lyons) would not merely content himself by recording in type in the DUBLIN BUILDER the various questions in connection with this subject that might from time to time arise, but he would go farther, he would hold "the mirror up to nature," and give "illustrations" of such localities as most needed sanitary improvement. (This announcement was received with continued cheering.) In this he (Mr. Lyons) had a precedent in London publications of similar character and purpose, and he would follow it up earnestly. The great improvement during late years in the sanitary state of London was a subject for special comment on this occasion, but with all due respect for Dr. Ryan, and for the other members of the medical profession who contributed to that desired end, he (Mr. Lyons) must notice with regret that the valuable assistance of the press had not met with grateful recognition. However distinguished might be the services of individuals, it must be clear to a demonstration that they should fall far short of general practical effect, were it not for the aid of publicity afforded by the press. This committee had to his (Mr. Lyons') mind commenced at the right end, in the course they were pursuing by meeting the operatives of the city, first at their respective halls or places of meeting, and then—as no doubt was their intention—taking the sense of the classes at an aggregate meeting; and when the proper period for that had arrived he hoped to see a numerous attendance of the members of the Regular Brick and Stone Layers of Dublin.

Mr. O'Mahony having been moved to the chair, and a vote of thanks passed to Dr. Barry, the meeting was about to separate, when a member of the society (Mr. Glynn) expressed a hope that Mr. Lyons might be induced shortly to deliver a lecture to that body, a request to which that gentleman said he would be happy to respond, a similar intention being communicated to other societies connected with the building and constructive arts.

TRADE RETURNS FOR 1861.

THE Board of Trade returns for the month and year ending 31st December, have just been issued. The export of British produce and manufactures in December, were valued at £9,760,129 against £12,128,541 last year, and £10,827,242 in December, '59. The exports in November and December last were nearly £8,000,000 more than in January and February of the same year. The total value of exports in 1861, was £125,115,000; in 1860, £185,891,000; and in 1859, £180,141,000.



NEW UNITARIAN CHURCH, STEPHEN'S-GREEN.

MESSRS. LANYON, LYNN, AND LANYON, ARCHITECTS.

THE LIBRARY
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UNIVERSITY OF MICHIGAN

THE INTERNATIONAL EXHIBITION BUILDING.

THE interior decorations of the building, so far as regards the nave, at least, have been placed in the hands of Mr. Crace. The shortness of the time at command left the Commissioners no other choice than to put the matter in hand at once, and under one responsible head. We trust that the result will be satisfactory; but feel that here is another misfortune, arising from the extreme haste in which the whole work has been carried on. The marvel is, that so much has been done, and so enormous a building raised from ground that, in March last, fed cows and maintained a few straggling fruit-trees.

It is not without repeated experiments that the decorations have been decided on. Several bays or pairs of shafts, and their intermediate sections of the nave roof, have been tinted to try effects and different systems of colouring. One of these displays a pale green, picked out with scarlet, having a blue band running along the upper portion. The effect of this is not at all good. There are also trials of greenish buff or drab, with dark chocolate pickings-out of the mouldings, which last, being heedfully kept in small proportion, has not an ill effect; gilding is here again introduced in the caps. The ground of the last is very sensibly kept of a pure dead white, the higher mouldings only being gilded. Although looking well on a bay or two, we fear that, repeated throughout the vast arcade, it would become poor in effect. A pale salmon colour, in more than one degree, has been tried; also an ashy blue, very pale, but somewhat cold, with white caps only. Then appear light lavender or delicate whitish purple, with white caps; also salmon colour, picked out with pale green and lines of pure white, and a certain faint russet colour, relieved with white and dark chocolate. The last is very objectionable. The plan to be adopted is none of these, but one which will give an appearance quite distinct from that of either the Great Exhibition or the existing Crystal Palace. It is obvious that the decorations of an interior having a closed and opaque roof, lighted only from the sides, must materially differ from that appropriate, and indeed demanded, for one where the whole is open, and drawn, as it were, between us and the bright sky itself. This difficulty has been recognized, and a richer and more strictly decorative effect aimed at. The square piers, or hinder shafts, and the shafts themselves on either side of the nave, are to be coloured with light olive-green, or suggestion of bronze, their horizontal mouldings delicately gilded, and a narrow line of pale greenish buff carried up their angles. The round columns, or advanced shafts, are to be similarly relieved. The caps are alternately painted blue and red, the same being repeated on the bands at the gallery-level, or half-way down the shaft. The higher lines of the mouldings on the caps are to be gilded. Thus far for the shafts and their caps.

The roof, a feature as important as the lines of columns and their square piers, will be painted in a very effective, but, if some modifications be not made in the tints employed, rather garish and hard manner. The spanners are to be divided into alternate spaces of bright red (say vermillion) and blue, relieved upon the margins of each with a buff line of some breadth, and having a conventionalized decoration of gilding and neutral colour, by way of pattern, upon each space of either hue. The form of this decoration is not good, but angular, poor, and commonplace. We trust it may be reconsidered. The sloping roof itself is to be of a very pale ashy grey, and, we believe, the rafters, or purlins, of a dead white. Between the spaces marked out by the spanners traversing the roof, three lines of a light but rich scroll ornament will run from the lower to the upper edges, at head and foot joining a richly-designed line of ornamentation, painted, like the scrolls, which are very light and simple, of a chocolate colour filled in with green. The effect of this will, no doubt, be good, and the delicate ground of the roof set off admirably the stronger hues of the spanners themselves, enriched as it will be by the decorations in flat colour running between them. To avoid the regimental and hard continuation of lines of red and blue, stretching, like stripes, along the whole length of the nave, which would occur if the same order of placing the spaces of each colour upon all the spanners were adopted, that order has been reversed alternately—counter-changed, as the heralds style it, so that to the eye examining the whole an interchanged effect will be given. The simple plan of beginning from the centre of each spanner with red or blue alternately effects the desired result, adding greatly to the richness and variety of the whole.

Admiring generally the design thus explained, we feel that the absolute necessity of a constructional character being given to the decorations has been neglected. Even after correction of the tints before noted as faulty, the sense will be jarred by this oversight. The idea of strength and service proper and essential to the functions of the several parts of the roof is not conveyed, but the design for the painting is purely decorative, without a thought for the construction. The ribs should have been chromatically pronounced, as ribs and constructional parts having important work to do, not treated as mere recipients for many tints and much gilding. We really trust that the inviolable law of Art, which cannot be broken with impunity, demanding that the noble faculty of service shall

never be hidden by mere decoration, will be attended to. To ignore it is to take rather a poor and unintelligent view of ornament, its limits and functions as subordinate to service and duty. This neglect is the sin of modern practice in decoration, and may be seen in every piece of upholsterer's work. Its result is effectually to remove modern decoration of the merely fashionable kind out of the pale of Art altogether, to lower it to a sort of chance-work having no intelligent principles to go upon.

The progress of the building itself may now be stated. The whole of the exterior, excepting a small portion of each wing, so far as the solid work goes, is now complete, the domes alone having their scaffolding standing, to give access to their interior for painting and fixing the glass itself. On the south front in the Cromwell Road the doors of the entrances are fixed. In the central entrance the subsidiary piers and even the plasterers' work are well advanced. The glass is all set in the windows of the lower or carriage gallery, and in the lights which stretch along the roof of the picture-galleries. The flooring to both these galleries and to the southern courts abutting on them is laid throughout, at well as that of the minor galleries surrounding these courts above. The south courts and those on the north of the nave are glazed in entirely. The floor of the north courts is not yet placed, the ground therein being yet a perfect sea of mud and wildness of timber and iron work. The staircases to all the courts, which in those of the south give access to the picture-galleries, are fast approaching completion. Painters are at work in scores throughout these courts upon the iron-work of the shafts and ridge-and-furrow roof. The placing of the floor in these courts show more perfectly than hitherto their proportions and true extent. Both the transepts are yet filled with scaffolding and hordes of workmen labouring upon the roof and clarestorias, the whole of which last is not yet placed. The ornamental fronts of cast-iron to the galleries in the south courts and along the nave on both sides are fixed, improving the appearance of the interior immensely. The stucco bases to the great shafts bearing up the domes are well advanced. The iron ornaments to the caps of the nave shafts are all up, and those in the transepts being placed with great rapidity. The Refreshment Department, which it will be remembered occupies the north front looking over the Horticultural Society's Garden, is getting fast towards completion in its solid works. The decorations herein, which are to be of the most sumptuous order, are not yet quite decided, we believe. The pinnacles, or great zinc globes and spear-points surmounting them, which will top the domes, lie in the nave, looking like huge sea-buoys used to mark the margins of sand-banks. On an early day they will take their intended lofty position, and give the means of determining the character of the domes themselves, important as those features of the edifice are. The annex, or enormous wooden shed for machinery in motion, has been glazed in the whole of the length of its skylight. The floor here is yet to be laid, and the timbers painted. Architecturally speaking, this portion of the design for the whole building will give the most unmixed satisfaction. It is elegant and effective, and beyond all doubt will answer its intended purpose admirably. Rough as are the timbers of which it is composed, and marvellously slender as they look, the picturesque appearance of the whole is almost fairy-like. It will be a pity to remove so elegant an erection when its brief office is done. For Volunteer Corps it would make a magnificent drill-shed, and be almost long enough for a shooting-ground. With moderate care, it would endure at least as long as the ground on which it stands is likely to remain unoccupied by more solid erections.

Notwithstanding the enormous amount of work thus described as completed, an immense deal remains to be done. Painting the nave alone is a gigantic task, and until this is executed the great travelling scaffold, in itself a wonder, cannot be taken to pieces and removed, so as to allow the flooring of that portion of the building to be laid. On the first day of March, less than twelve months, from the marking out of the land, the delivery of articles for exhibition will commence. Before this can be thought of, the flooring must be all laid. The belts which encircle the vast ribs of the dome are placed in their situations, almost all the metal for the carved sash-bars to hold the glass is on the ground, and much of it placed. The Commissioners had doubts if the strength of these belts would suffice to resist the outward stress of the ribs themselves, especially during high winds. No doubt, ample care will be taken to give perfect security to these works. The excess of strength given to all parts of the building guarantees that it will not be omitted here in the most exposed sections of the whole. The consequences of a fall are too terrible to be thought of as a risk to be incurred. The upper floors of the transepts have yet to be placed, and their decorations executed. The decorations to the picture-galleries on the south side are yet undone, although the walls are canvassed and covered with white paper as a foundation for the final coloured hangings themselves. An engine for driving the machinery in motion is to be placed at the north end of the annex; it is to have six furnaces, and to work up to 300-horse power at 80lb. pressure, to have a chimney 100 ft. high and 12 ft. in diameter. So vast is yet the work remaining to be done; so enormous has been the work already done.—*Athenaeum*.

THE FOUNTAINS, CRYSTAL PALACE, SYDENHAM.

THE great system of fountains in the grounds of the Crystal Palace, though the most stupendous that the world has ever seen, is designed with an unity which greatly enhances, or rather fully displays, its unrivalled magnificence. The whole system is divided into two series, the upper and the lower. The upper series, which consists of the six basins adorning the long extent of the second terrace, with the great circular fountain in the centre, and the smaller ones on either side of it, in all, nine fountains, constitutes the display on ordinary occasions. Beyond these, as we advance down the central path, are the Iron Water Temples, from which the water rushes down a series of twelve cascades, extending for a distance of 800 feet, till it falls over the stone arcade in the great fountain basins, forming a glittering cataract 120 feet broad, with a fall of thirty feet. The Water Temples, with their cascades and falls, and the two great fountains into the basins of which they discharge, constitute the lower series, which is played only on grand occasions; but all are part of one design, and each one ministers to its completeness.

Unlike most similar works, sculpture has not been used to enhance or obtain the effect desired. Under any circumstances, water, when thrown high into the air, assumes a graceful and beautiful appearance; no ungente curves or distortions of form mar its expression of a natural beauty, which, though it may be the roaring grandeur of a mighty stream, or the gentle grace of the smallest jet, bears with it an unspeakable charm. In the Crystal Palace Fountains the designs are carried out by the water alone, and the sculptural ornamentation is confined to the margins of the basins, and, down the sides of the cascades, to some small ornamental bronze fountains of secondary importance.

The first six fountains of the upper series which ornament the Italian Garden on the second terrace throw their highest jets to the height of 90 feet, the lower jets form graceful designs round the bases of these columns of water, and in other parts of the basins. It is so arranged that the waste water from these basins is again used for the lowest jets of the fountains which lie between these and the Water Temples, a rapid descent in the ground giving sufficient pressure for this purpose; the same is the case with the water flowing from these again, as it is once more used for the lower water designs in the great basins.

The great circular fountain, which occupies the central position below the terraces, is the principal one of the upper series. Its highest columns, which rise in an imposing mass from a gigantic cradle formed by the water, attain the altitude of 150 feet. Rising from the surface around this, are single upright streams which beautifully fill in the design, throwing their spray to almost an equal height. The whole is surrounded by a delicate trellis of water, in which the jets appear to interlace with one another. On the right and left of this, but in lower positions, are two smaller circular fountains of great beauty, which, with those already described, complete the upper series. The largest circular basin is 196 feet in diameter.

We now approach the two Water Temples which head the cascades on either side of the broad central walk. These Temples are octagonal in shape, with dome-shaped roofs, and are constructed of ornamental ironwork, gaily coloured and gilded. On the apex of each is a bronze figure, from beneath which the water, which is forced up the hollow columns, burst in a glittering film till it falls over the roof and down the sides. The Temples are about 60 feet in height. The head or basin which surrounds each one, and from which the water flows down the cascades, is a parallelogram of 72 feet, with semicircular extensions in the two sides of 18 feet radius. Bronze fountains ornament each side of the cascades.

The great fountains are the crowning effect of the whole system, and are the largest in the world. The basins, which are designed with a graceful and diversified outline, are 784 feet each in length, having a diameter in the semicircular centre portion of 468 feet. A great central column rises in each, streaming upward to the height of 280 feet when undisturbed by wind. These columns are each composed of 50 two-inch jets, which burst forth under a pressure on the mouth of the pipes of 262 lb. to the square inch. The design is carried out by an infinite variety of water display. The effect is gained by the water alone, which assumes many forms, from the giant and stately column, to the most delicate crystal tracery. When the whole system of fountains is displayed, no less than 11,788 jets are in operation, throwing 120,000 gallons per minute. A grand display usually consumes 6,000,000 gallons of water. These stupendous and magnificent works were designed by Sir Joseph Paxton, the engineering operations being executed by Mr. W. Shields, the resident engineer of the Company.

The British and Irish Telegraph Company have spent £100,000 in Ireland, and have 100 stations in direct communication with London. They have between Queenstown and London only two breaks on their line, and sometimes only one. In fifteen minutes a message from Queenstown reaches London by their line.

Notes of New Works.

Further important structures for Record buildings, Court of Probate, &c., are being commenced in the vicinity of the Four Courts by the Board of Public Works; Mr. Meade, contractor. We presume that this centralization of the courts will cause the familiar name of of "Four" Courts to merge into oblivion, as it would seem absurdity to retain it.

Various works are to be executed at the churches of Island Magee (Kildollagh), Ramoan, Co. Antrim; Kildarton, Co. Armagh; Down (Cathedral), Co. Down; Kilsaran (Castlebellingham), Mansfieldstown, Co. Louth, according to plans furnished by the Ecclesiastical Commissioners' architects. The churches of Carnecastle, Co. Antrim; Seagoe, Co. Armagh, are also to be internally fitted up and repaired.

The Court-house of Enniskillen is to be remodelled at an expense not exceeding £1,200.

A new National Bank House is to be erected at Mountmellick, according to plans by Mr. Caldbeck, architect.

The chapel-house at Howth is to be completed, and Lord Howth has subscribed £80 for that purpose.

Two semi-detached houses are to be completed at Merrion. Mr. M'Curdy, architect.

It is proposed to enlarge the area of Smithfield by removing the block of buildings running from the hay-market to North King-street, and to Queen-street. This would add four acres to the area of the market. If necessary, a further extension would be made by removing buildings from King-street to Stoneybatter, and from the lower end of Smithfield to Arran-quay.

With reference to the new bridge over the Boyne, Mr. Neville, county surveyor, reports to grand jury of Drogheda that "an application for £2,600 for building a new bridge over the Boyne, on the site of the present structure in the town, is now before them;" that "his object in referring to it here is to draw attention to the proposed design, and whether instructions shall be given for a bridge with an opening to allow a free passage for masted vessels, or for a bridge with an uninterrupted roadway traffic as at present. His own opinion has always been in favour of an uninterrupted waterway without central piers, and with the same or greater facility for vessels to go up or come down the river, as at present; but as at present, also, without an opening for masted vessels to pass through." Mr. Knaggs, T.C., objected to the grand jury adopting the report, inasmuch as that the harbour commissioners had promised a sum of money towards the erection of the bridge, provided that it would not interfere with the scouring power of the river, and that difficulty could easily be got over by having a bridge which would span the Boyne. He thought it very wrong when people were not able to pay the county cess, to tax them further for the building of the bridge. The presentment was nevertheless carried.

The works proposed at Carrickfergus Harbour consist of a pier on the eastern side, commencing near the landward end of the existing pier or quay, and running in a southerly direction for 600 feet, then with a cant to the westward for 100 feet; and a stone breakwater to protect the same, 400 feet in length, lying about 550 feet to the westward of, and parallel to, the pier, with an easterly cant to the south end. The pier is to have a depth of from 5 to 7 feet at time of low water, and about 17 feet at time of high water of spring tides, and there is to be a clear width of entrance between the pier and breakwater of 400 feet. The first 350 feet of the pier to be of stonework, the remainder of open pile work.

The laying of the foundation stone of the new church of St. Augustine (previously illustrated and described in the DUBLIN BUILDER) will take place on Easter Monday, Archbishop Cullen officiating.

We (*Evening Post*) have learned that arrangements have been completed for the purchase of thirty acres of land, adjacent to this city, on the north side, for the erection of the Catholic University. We understand that it is intended to raise a splendid and commodious structure with every accessory suitable to a great educational establishment, which, in point of architecture and other respects, will be really creditable to the country. With the least possible delay all the necessary steps will be taken for commencing the buildings, which are intended to be upon a very extensive scale.

New gas works are in course of erection at Donegal.

Much employment is given, says *Saunders'* correspondent, on the Premier's estate in Sligo, in the making of large main drains through deep bogs, main drains through the different townlands, subsoiling and thorough drainage, making fences between tenants' holdings on townlands newly squared, building walls, planting trees, sowing pine seeds, planting bent grass on the sand hills, keeping roads in repair, making new ones, repairing schoolhouses, and other works. The monthly bill for these works is £63, and his lordship is also paying £38 a month for the construction of a new breakwater at Mullaghmore, and the deepening of the basin and the entrance to the harbour—making a monthly expenditure on the estate of £101.

The contract for the new works to be performed at Camden Fort has, according to the *Cork Examiner*, just been let to Mr. Israel Thornton, of Bradford, contractor, at £13,000. There were not, we believe, many tenders from local parties. The works will be proceeded with immediately.

On the estate of Lord Stratheden, at Barna, Co. Mayo, are engaged the spare hands in trenching and clearing the ground preparatory to building some nice lodges.

STRENGTH OF THE EXHIBITION BUILDING.

THE following report has been addressed to her Majesty's Commissioners by the professional members of the Building Committee of the International Exhibition:—

To the Commissioners of the International Exhibition.

My Lords and Gentlemen,—Feeling that it would be a source of satisfaction to the Commissioners, as well as to ourselves, as members of the Building Committee, and also a due precaution for the public safety, that the gallery and other floors of the International Exhibition Building at South Kensington should be thoroughly proved, we undertook a series of experiments on Monday last.

We have to report that, in carrying out these experiments, the various floors and stairs were put to a more severe test than they would be subjected to with the largest number of people that could possibly be assembled upon them at any other time during the Exhibition. The results of these experiments fully bear out our calculations on the strength of the different parts of the structure, and we feel perfectly satisfied as to the stability of the building for the purpose for which it was intended.

The two large domes, in the strength of which we have taken great interest, were eased from their temporary support last week, and no observable settlement took place.

The following are the particulars of the tests:—The first caused a large body of men, about 400 in number, to be closely packed upon a space 25 feet by 25 feet, on one lay of flooring; we then moved them in step, and afterwards made them run over the different galleries and down each staircase; at the same time we caused the deflections of the girders carrying these floors to be carefully noted at several places, and had the satisfaction of finding that, in each case, the deflections were very nearly the same, thus exhibiting a remarkable uniformity in the construction. The cast-iron girders, with 25 feet bearings, deflected only one-eighth of an inch at the centre, and the timber-trussed beams of the same bearing placed between these girders deflected half-an-inch at the centre. In every instance the girders and trusses recovered their original position immediately on the removal of the load.

We are, my Lords and Gentlemen, yours faithfully,
WM. FAIRBAIRN, C.E.
WILLIAM BAKER, C.E.

SCIENCE, LITERATURE, AND ART.

The second concert for the season of the Dublin Madrigal Society is announced to take place at the Antient Concert Rooms on Monday evening, the 8rd inst. *Artistes Principals*:—Miss Cruise, Miss M. Barry (pupil of Mr. Blanchard, her first appearance), *Soprano*; Mr. Topham, Mr. Tracy, *Tenors*; *Basso*, Mr. R. Smith; *Accompanist*, Mr. O'Rorke; *Pianoforte*, Miss Gonne (her first appearance). The programme will include an extensive selection from Balfe's opera of "Joan of Arc." The annual dinner took place on the 27th ult.

A public meeting to inaugurate the project of a new building for the North London Gallery, Museum, and School of Art took place at the Theatre of the Literary and Scientific Society, Wellington-street, Islington, on the 26th ult.: Earl Granville, K.G., in the chair. The Lord Bishop of London; the Right Hon. T. Milner Gibson, M.P.; Sir S. Morton Peto, Bart., M.P.; Messrs. Robert Hanbury, M.P.; the Rev. Daniel Wilson, M.A., Vicar of Islington; Thomas Sopwith, F.R.S.; George Godwin, F.R.S.; Francis Lycett, took part in the proceedings.

A course of twenty class lessons and practical demonstrations in organic chemistry, by Professor Robert Galloway, F.C.S.L., commenced in the Laboratory of the Museum of Irish Industry, on the 21st ult., and one lesson will be delivered each week until the course is complete.

With reference to the contributions from Ireland to a memorial of the late Prince Consort, there is a very general feeling that they should be applied locally, and not be sent to London for the central memorial.

It is proposed that the next (or sixth annual) meeting of the Association for the promotion of Social Science be held in London in June next, in conjunction with the Congress de Bienfaisance.

Mr. Edmund Falconer, the lessee of the Lyceum Theatre, and author of the drama, *Peep o' Day*, is said to be clearing £1,200 a week by its representation.

Mr. W. Sandby is at work upon a "History of the Royal Academy," from 1768 to the present time.

An exhibition of grand historical French paintings, by Mons. Court, historical painter to the French Government, including the Martyrdom of Saint Agnes in the Roman Forum; Napoleon III. and the Empress Eugenie; Boissy D'Anglas, President at the National Convention; Marshal Pelissier, Duke of Malakoff; the Flight of Ben Aissa, Lieutenant of Achmet; Pope Pius IX.; M. Dupin, President of Legislative Assembly; and about eighty other important subjects and portraits of distinguished persons, is now on view on the Rotundo.

Mr. Fergusson, the eminent architect, and author of "Hand-book," &c., takes exception to Mr. Charles Newton's book on "Halicarnassus" in the following terms, through the medium of the *Athenaeum*:—"As an architect I dissent from the restoration of the Mausoleum therein contained, because it makes one of the most hideous buildings ever dreamt of out of what all antiquity agreed was one of the most beautiful. Under any circumstances a great cubic mass of plain masonry 119 feet by 88 in plan, and 65 feet high, unrelieved by either sculpture or architectural ornament, is as ugly a feature as ever issued from the hand of man; and when used as a base for a delicate and highly ornamented Ionic order, it also becomes one of the most inappropriate. Above this, in Mr. Newton's restoration, there is nothing but a low, flat pyramid—truncated to receive the quadriga, but so arranged that it can nowhere be seen itself, but manages at the same time to prevent the sculpture it supported from being visible within any moderate range of vision. If the Greeks did all this, they were a wonderfully stupid and inartistic people," and concluded by saying "what must foreigners think of the position of art in England in 1862?"

The Pope sends to the London Exhibition a magnificent missal, bound in crimson velvet, with gold clasps and mountings, and enclosed in an inlaid ebony case, which, when opened, forms a *leggio*, or reading desk for the missal.

Subscribers to the Art Union of England (half-a-guinea) may select one of two chromo-lithographs, viz.: "Stepping Stones" (Goodall), or "On the Island of Zante" (Rowbotham), in addition to their chance of a prize.

It will take £214,000 to erect the great Museum at South Kensington according to Captain Fowke's plans.

The Queen intends presenting a portrait of the late Prince Consort to the National Portrait Gallery.

At a meeting of the Society of Arts, held on Wednesday evening week, Mr. Salmon read a paper on "the relative merits of the different systems of working metallic mines and collieries," in which the author remarked that among the mineral resources of Great Britain coal and iron occupy by far the most important position, their value having been in 1860 nearly seven and a-half times as great as that of the produce of all the metallic minerals put together. The values were—coal, twenty millions; and pig-iron, twelve and a-half millions; while all the other metallic minerals only yielded about four and a-half millions sterling.

INDUSTRIAL.

The Irish Branch Committee of the Society "for Promoting the Employment of Women" met on the 15th ult., for the purpose of opening the telegraph class; Mr. Watlock, Engineer of the British and Irish Magnetic Telegraph Company, delivered an interesting lecture.

According to a return made on motion in the House of Commons by Lord Dunkellin, it appears "that for agricultural labourers weekly wages are far higher in Roscommon than in any other county in Ireland; for men in Roscommon they amount to 10s., women 5s. and children under sixteen 4s. 6d. In the county of Dublin the wages of men are put down at 8s. 9d., women 4s. 11d., and children 8s. 9d. The county in which the labourer is remunerated most poorly is Waterford; there the wages of men are 4s. 6d. weekly, women 2s. 9d., and children nothing! In Galway men earn 6s. 6d. weekly, women 3s. 7d., and children 2s. 5d. The general average of men's wages appears to be 7s. per week, women 4s., and children 2s. 6d. In harvest time wages in some counties are doubled "for four or six weeks," in others no perceptible increase takes place. In a few counties there is no remuneration for the work of children.

Sir Robert Peel (Chief Secretary for Ireland) has introduced a bill into the House of Commons for the better regulation of Irish fairs and markets. The measure is one of considerable importance, and with certain slight modifications, substantially the same as that reported by the select committee last year. The Right Hon. Bart., in the course of an able and lengthened address upon the subject, said—"We hear that Irish industry, in comparison with other countries, is backward. I do not know whether that is true, but of this I am sure—that it is true it is not attributable to natural defects or want of energy in her people. It will not be denied that there is a spirit of improvement developed in Ireland which we cannot too highly applaud, and I believe that by passing this bill and removing cumbrous machinery which interferes with the operations of all classes, we shall successfully aid that development."

NEWS ITEMS.

The Queen has signified her wish to the Royal Horticultural Society of England that the Duke of Buccleuch should fill the office of president, as successor to the late lamented Prince Consort; and had it been compatible with her Majesty's own high position, her Majesty would herself have condescended to accept the presidency.

The great triennial Handel festival will take place at the Crystal Palace, Sydenham, in June next, and according to the programme just issued will comprise three days' performances, viz.:—June 23rd, the *Messiah*; 25th, *Selection*; 27th, *Israel in Egypt*. The entire orchestra (which is 216 feet wide, or double the diameter of St. Paul's dome), and the space beyond it, as far as the intersection of the great transept with the nave, is being roofed in. The chorus will consist of upwards of 4,000 performers; Mr. Costa, conductor. The *Messiah* was first performed in Dublin on the 13th of April, 1742, and the great maestro died on the 14th of April, 1769. He was privately buried in Westminster Abbey, and previous to his death desired by his will that a monument not exceeding £600 in cost should be erected to his memory.

The Commissioners of Sewers (London) have received a report from their engineer and medical officer on "the result of experiments on the ventilation of sewers," which tends to prove that "charcoal has the power of absorbing and oxydising the miasms of organic decomposition, when, with atmospheric air, they are passed over it. In commenting on these facts it was remarked that in common wood charcoal there was evidently a powerful means of destroying the foul gases of sewers, and that the practical application of it was fortunately a question of but little embarrassment; for, to use the words of the report, 'let the sewers be ventilated as they may, either by open gratings in the streets, or by the rain water pipes in the houses, or by the pillars of the gas lamps, or by tubes carried up at the landlord's expense from the drains of every house, or by especial shafts in the public streets—in fact, let the gases go out of the sewers how they will, and where they will, you have but to place a small box containing a few pennyworths of charcoal in the course of the draft, and the purification of the air will be complete.'"

Ten junior appointments in the engineer establishment of the Department of Public Works in India will be open to competitive examination during the current year.

A concert by the female pupils of St. Mary's Asylum for Industrious Blind takes place this evening.

The operations on account of the New India Telegraph Company are proceeding satisfactorily. The line from Alexandria to Suez has been placed in good working order. Communication is now open from London to the Red Sea.

At a special convened meeting of the City of Dublin Corporation on Saturday, the 22nd ult., the report of Committee No. 3 relative to the proposed removal of Smithfield Market to the North-wall was a subject of lengthened discussion. The principal speakers in favour of the project were Alderman Martin, Town Councillors Martin and Knox, supported in the vote by Town Councillors Acheson, Josepha, and French; while among those who spoke against it were Aldermen Roe and Reynolds, and Town Councillors Devitt, Manning, Carey, O'Brien, &c. &c.; the majority in favour of the latter when a division was called for being twenty-four to seven.

An English solicitor—William Ansell Day—has sought a certificate from the Irish Bankruptcy Court, having incurred debts as "a brickmaker" in England to the amount of about £97,000, leaving only about £60 or £70 due to Irish creditors. Judge Berwick said "in the present case it was quite clear that it would be contrary to the interest of the creditors that the case should be finally disposed of in this country."

Sir Robert Peel, in course of his speech in the House of Commons on the 21st ult., relative to the Irish distress question, said, "that the sanitary condition of the people in the four provinces was never better than it was at the present time." [We hope it may hereafter be much better than it is at present, which is as bad as could be desired, Dublin being about the best example of sanitary deficiency.—Ed.]

A testimonial is proposed to be presented to F. T. Porter, Esq., one of the divisional magistrates of Dublin for upwards of twenty years.

Madame Ristori, the celebrated tragedienne, is building a magnificent mansion at Florence.

The subscriptions to the Hartley Colliery Fund at the Mansion-house, London, amount to about £19,000.

The total amount subscribed to the Jolly testimonial, the subscription list for which has closed, is £183, and the sum has been placed in the hands of trustees until that lady shall have attained her majority.

The contractors for the International Exhibition building have insured it in the Norwich office for £400,000. The agent who brought the business to the office nets £330 commission.

The testimonial to Mr. Charles Kean will be presented by the Duke of Newcastle, at St. James's Hall, on 22nd inst. It will afterwards be removed to the Exhibition.

The Atlantic Mail Steam Navigation Company has recently expended one hundred and fifty thousand pounds in improving their steamers, and some of these magnificent vessels will be ready to commence the service shortly.

Mr. Hans Busk, a gentleman of high classical attainments, and who had been on terms of intimacy with most of the literary and political celebrities who flourished in the earlier part of the present century, and shared the friendship of Sir P. F. Fox, Windham, Sheridan, Canning, Percival, and Wilberforce, as well as that of Byron and Moore, died recently in London at the age of 90 years.

The will of Sir Peter Laurie has been proved—personalty under £160,000. He has left a legacy of £50 to a Scottish hospital in London.

The subscriptions to the O'Donovan testimonial are progressing. Mr. W. S. O'Brien, in enclosing a cheque for £10 as his contribution, says, "certain it is that there is scarcely a family in Ireland, whether of Gaelic, Norman, or Saxon extraction, whose annals have not been illustrated by the labours of Dr. O'Donovan, and I doubt whether there is in Ireland a single parish the topography and local history of which have not been elucidated by his researches."

The claims for compensation of the property holders along the line of the works for proposed water supply of Dublin, are being considered by the government arbitrator, Mr. Fishbourne. Mr. J. J. Byrne is valuator for the corporation.

The explosion at Fenton Park furnaces, Staffordshire, was occasioned by the negligence of the engineer, who perished, in not keeping the boilers properly supplied. The damage is estimated at upwards of £4000.

The fatal explosion at Merthyr has rendered sixteen persons helpless and destitute, and suggestions are made that a portion of the surplus of the Hartley Fund should be applied for their relief.

The Dublin Corporation Fire Brigade Bill has been read a second time and passed.

Another fatal explosion of a paraffin oil lamp has occurred in London.

By an accident last week at Wolverton on the L. and N. W. Railway, Edward Oliver, of Carlow, cattle dealer, was killed, and two others in same occupation seriously injured.

The *Clonmel Chronicle* points out how, in the immediate vicinity of a narrow and populous street in Clonmel, a manure heap is allowed to remain as a fixture; adding, that in that street we chronicle what we fear we must regard as the natural consequences, fifteen cases of fever.

Active measures have been taken to erect a testimonial to the memory of the late Lord Rossmore. The form contemplated is a stained-glass window erected in the east end of the church at Monaghan.

A very beautiful brass has been let into the floor of the nave of Westminster Abbey during the past few weeks, to the memory of the late Mr. Robert Stephenson, who was buried side by side with Tal-foord. The memorial is of Cornish granite, and weighs two tons two cwt. The brass is a figure of Mr. Stephenson, who is represented in plain clothes, his arms folded across his breast, and is very life-like. The inscription round the figure is "Sacred to the memory of Mr. Robert Stephenson, M.P., D.C.L., F.R.S., &c., late President of the Institution of Civil Engineers, who died 12th October, A.D. 1859, aged 56 years."

The new Telegraph Company is busy laying the wires along the Glanmire-road to Youghal, in order to carry them on by Dungarvan to Waterford. At the Wexford end of the line the same operation is proceeding.

Donizetti's "Il Furioso" has been given at the Italian Opera of Paris, without any result of success. It is one of his feeble works, and was not moreover strongly cast.

RAILWAY MEMORANDA.

The contract works of the Nenagh and Birdhill Extension line (G. S. and W. R.) are for disposal up to 19th inst.; Mr. Lefanu, C.E. Petitions have been forwarded to Parliament, and to the Privy Council for trade, setting forth the great public injury to the traffic of Dundalk, which the contemplated line to the quay by the Dundalk and Enniskillen Railway Company would cause if constructed, and stating that the promoters of the line were entirely actuated by their own private interest.

The Cork and Kinsale railway will be open for traffic in June next. The materials for the permanent way, including rails, rivets, &c., are now upon the ground, and workmen have commenced laying them on the line from the junction with the Cork and Bandon Railway at the Cross Barry Station. The line will now go as far as the military barracks into the town of Kinsale, and a horse tramway will be constructed from that to the deep-water harbour for the accommodation of the shipping, and the great fish traffic to be obtained there.

The Great Southern and Western held its half-yearly meeting on the 15th ult. The report was most satisfactory, and a dividend at the rate of five per cent. was declared.

The chairman of the Dundalk and Enniskillen railways, with an engine and carriage, passed over the line between Clones and Cavan, and the engineer states that he has every reason to believe that the opening of the line will not be delayed beyond the middle of present month.

The traffic receipts of railways in the united kingdom, for the week ending 8th February, show an increase of thirteen miles, and a decrease of £16,614, as compared with the corresponding week last year. The falling off is chiefly exhibited in the goods traffic on the principal line. The traffic receipts of past week show a decrease of £1,545, as compared with those of preceding week ending 1st.

The standing orders are announced to have been complied with in the following railway cases:—Dundalk and Enniskillen; Enniskillen and Bundoran; G. S. and W. and Limerick and Castleconnell; Derry and Coleraine; Newry and Armagh; Parsonstown and Portumna Bridge; Ulster and Banbridge, Lisburn and Belfast; Waterford and Limerick, and Limerick and Ennis. In the following cases the standing orders have not been complied with:—Dublin and Meath Railway; Great Northern and Western (of Ireland) Railway; Newcastle (county of Down).

The chief promoters of the Shannon and Midland Counties and the Parsonstown Portumna Bridge Railways have recently met with a view of effecting some amicable arrangement, and the Shannon Company have offered to apply to Parliament to extend their line from Meelick to Portumna, and also to pay the proper expenses incurred by the Parsonstown and Portumna Bridge Company, provided they relinquish their line. It is also contemplated to have a branch line from either Meelick or Banagher to Parsonstown, and thus to complete the railway connection with the south.

The construction of the Extension from Kells to Oldcastle has proceeded steadily since the works began in July last. The long continuance of wet weather, which has been a great obstacle to most railway works, has not seriously delayed those on this line. The masonry is not so forward, but what is done is well executed, and there is not much to be done altogether, and the contractor will have no difficulty in completing it with the rest of the works within the stipulated time. Mr. Blakiston, C.E.

The Omagh and Dungannon Railway is now open for traffic, and a joint-station at Omagh is in course of erection.

The Board of Directors of the Dublin, Wicklow, and Wexford Railway Company, on the retirement of Mr. Arthur Moore, the late secretary, upon his appointment to the secretaryship of the Bristol and Exeter line, unanimously resolved—"That Mr. Moore's resignation be accepted, and the directors regret that the Company thereby loses a valuable officer, who has filled the office of secretary for five years zealously, ably, and honourably, and they wish him prosperity in his new sphere." Mr. Moore is succeeded by Mr. E. W. Maunsell, the active and efficient secretary of the Limerick and Ennis and Castleconnell Railways.

The works of the Ulster Railway Extension are so far advanced that the permanent way is now laid up to the new goods stores. Great exertions have been made by the contractors to complete thus far the works.

FOXROCK.—This new building district is in rapid progress of development, several new roads having been made and now making; new houses rising in all directions; an hotel and church in embryo, and that very necessary acquisition to a country district, a good general shop, established; stage cars and omnibuses running to and from Kingstown, &c. This latter accommodation is, we understand, to be largely increased when the season is more advanced. We hope to visit Foxrock shortly, and to report more fully.

RELICS OF TURNER.—The subscription price of Turner's "Liber Studiorum" was £17 10s. Before his death a copy sold for thirty-one guineas, and since his death five copies have been sold for £3,000. The "Liber" was not successful in the business sense of the term. But the price that a fine copy would fetch at the present time would seem almost fabulous. Engraved by Charles Turner and others, at a cost varying from five to seven guineas per plate, proof impressions of single plates have recently sold for upwards of £10, and proofs touched on by the artist himself for more than double. Some time before Mr. Charles Turner's death, Messrs. Colnaghi bought all his "Liber" proofs and trials of effect for a large sum. When the money (£1,500, I believe) was paid, the old engraver wrung his hands, and, with tears in his eyes, exclaimed, "Why, good God, I have been burning bank notes all my life!" I have heard that many of these proofs, worth large prices, had been used to light the fire. The room in Queen Anne-street was remarkable for a dusty and dirty buffet bought at some second-hand Jew broker's. In this Turner kept the immemorial sherry bottle, with the broken cork, that served him for a decanter, and which no joking of friends could get him to change. This was the identical bottle and buffet of which the old story was current at the clubs. A friend came to see Turner, and was treated with a glass of sherry from the old bottle and the old buffet—one glass. About the same time next year the artist came again, had another glass, and praised the wine. "It ought to be good," said Turner, "it's the same bottle you tasted before."

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Hanly, Lismaskee	£300
M'Lean, Belturbet	785
Maguire, Newtownbutler	745
M'Dermot, Cavan (accepted)	758

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Such of our Advertising friends as have received accounts from our office, and also Subscribers for current year, will kindly remit the amounts soon as convenient.

Letters relating to subscriptions and agents to be addressed to, and Post-office Orders, &c., to be made in favor of, the Publisher, Mr. PETER ROE, 42, Mabbot-st., Dublin, who will give the proper acknowledgment.

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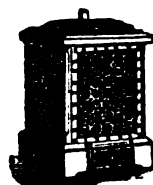
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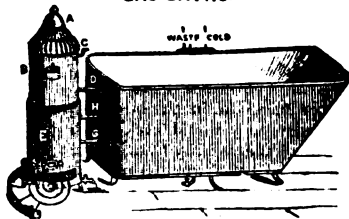
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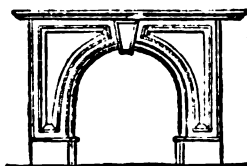
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THOS. MACKIE, Secy.

Dublin, 57, DAWSON-STREET, February, 1862.

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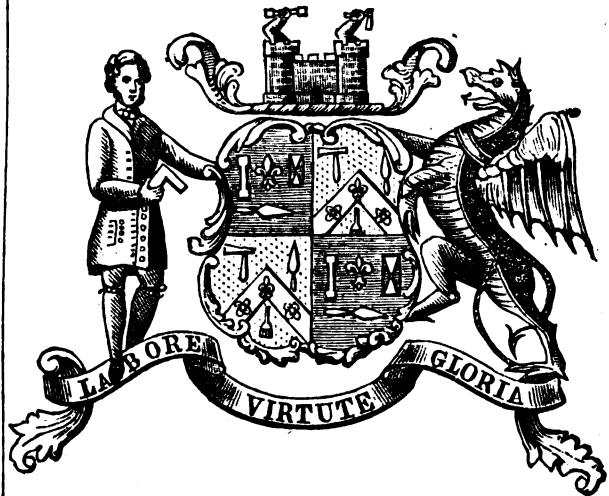
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TRADE SOCIETIES.

THE REGULAR OPERATIVE BRICK AND STONE LAYERS.

IN A.D. 1670 was incorporated by royal charter the united Corporation of the Bricklayers and Plasterers, or Guild of St. Bartholomew, its purposes being "for the better and more skilful regulating said arts or mysteries therein, and for preventing those evils which fall upon the PUBLIC by the UNSKILFULNESS of divers persons who pretend knowledge to said arts or mysteries." Circumstances, however, subsequent to its establishment—and which, from the nature of modern practices in building works, were a reasonable consequence—rendered a distinction desirable between the Bricklayers' and the Plasterers' craft, and led to the construction of independent guilds for each. So closely allied in their pursuits are the Bricklayer and the Stonelayer or Mason, that it is not inconsistent to assume their alliance into one guild, and the most ancient body in our city so constituted is that under notice. We have to congratulate the members on their attainment of that great desideratum, a suitable place of assembly, the neat cut stone-fronted building in Cuffe-street—formerly known as the memorable Savings Bank, whose failure brought sorrow and distress to many a hearth—with its spacious hall, 55 feet long by 17 feet wide, and various other apartments, obtained by the body at an immediate expenditure of some hundred pounds—Independent of the yearly rent—reflecting the highest credit on the independence and enterprise of the body. Like their brethren of the "bench" (the Carpenters), the Bricklayers formerly held open air meetings in summer time in the Phoenix Park, and in winter had to resort to the very undesirable accommodation afforded by a public-house; the amelioration, therefore, in their social position, effected by the recent arrangements, must be regarded with interest by all well-wishers of the artisan class, and we hope to see their praiseworthy example adopted by all kindred institutes in this city. It appears that this society is supported by annual contributions from each member of thirteen shillings, but special donations are also occasionally obtained when unforeseen circumstances and the state of the general fund renders same necessary. Amongst the principal objects—in addition to those above enumerated—of this society are to be recorded the affording of pecuniary assistance to the widows and orphans of deceased members, and the provision for the latter by apprenticeship to the trade; besides which we also find that a limited portion of the premises is set apart for the maintenance and accommodation of aged and infirm members. As an instance, we may adduce that during the last year ten widows, who otherwise might have suffered extreme destitution, were relieved, by allowances out of the funds, and three orphans were apprenticed. The current rate of wages is happily much better calculated to minister to the wants and necessities of the Bricklayer—who, it must be admitted, "earns his crust by the sweat of his brow"—than heretofore, inasmuch as that he now receives during the season, from March to November, an average of 30s. per week, whereas forty years ago he was glad to obtain employment at half that amount. This income enables him to clothe himself and his family better, to pay for occupation of more suitable dwellings, and to contribute even a little towards the education of his children—the dearest ambition of every worthy parent. That the members of this society avail themselves fairly of the opportunity so afforded, that in general demeanour and intelligence they cannot suffer by comparison with any other of the trades, we can, from personal observation and inquiry, testify. We must here, however, express a concern that, during the dull season of winter, about one-half of the three hundred and fifty Bricklayers belonging to this body were idle, and their comforts have been necessarily curtailed temporarily; but as spring is generally the harbinger of a host of new building operations, we shall be happy to learn that the demand for employment of their services will be even greater

than the supply obtainable. In grateful recognition of the good feeling substantially displayed by some of the builders in this city towards the Regular Bricklayers, the members of the deputation from the body who waited on us recently, desire us to include in this notice that in some instances voluntary rise of wages has taken place, and without any pressure direct or indirect on their part. This is to us a very pleasing fact to chronicle, and it will afford us additional gratification always to learn that the utmost harmony will prevail between employers and employed of this and all other bodies connected with the constructive arts. There is a point to which we must here make special allusion—viz., the taxation of this society's premises. We see no reason why the Bricklayers should not be as exempt from the annual reminders of the "Collector-General" as others with an establishment devoted to similar purposes, although the lawyers may raise a question as to its coming under "charitable, literary, or scientific denomination;" and we would urge on them not to be discouraged by previous refusal to acknowledge their claims, but to press gently but earnestly on consideration of the proper authorities, their right to enjoy equal privilege, in this regard, with their fellows, the operative carpenters, whose house in Gloucester-street (already noticed) is free from taxes. In any way we can further aid in the attainment of this most desirable object, the Bricklayers may command us. The formation of a news-room and library for the independent purposes of the members, is also another evidence of this society's worthy endeavours to advance their position; and it is all but accomplished. When it is—which, we trust, will be very soon—we may here repeat what has been already communicated personally to the members, that the conductor of this journal, with a view to the adoption of his example by others, will present, at an early period, a donation of books; and though small the offering may be, he doubts not that the spirit of the intention will be appreciated. A similar course shall be likewise pursued towards other trade societies that may display the emulation to suggest it under like circumstances. We here conclude this notice by an illustration of the trade emblem of "The Regular Operative Brick and Stone-layers," which we caused to be specially prepared, and trust that every prosperity may attend their future proceedings, when accompanied by right and justice.



PROPOSED ULSTER ARCHITECTURAL ASSOCIATION.

THE palpable necessity for a properly constituted body to represent the architectural profession in Ireland, and for the protection of its interests being generally acknowledged, we are glad to hear that the matter is about to be brought under the special consideration of the architects of the North of Ireland, in the shape of a proposition to establish an institute under the title of the "Ulster Architectural Association." The practitioners in this province alone are very numerous, and comprise many names well known for eminence, but we have every reason to believe that the proposed association, although distinguished by a local title, will comprehend as honorary members selected by ballot, architects practising elsewhere. The inauguration of another "institute of architects" is also under consideration, but of this we shall speak more specially hereafter.

PROFESSOR SMIRKE'S LECTURES ON ARCHITECTURE
AT THE ROYAL ACADEMY.—LECTURE II.

Dr. Moore tells us, somewhere, of his having met on his continental travels with a Scotch tourist who was delighted with the mountain scenery of Italy, and was expressing his admiration of one of the sub-Alpine lakes, when he was rebuked by the doctor, who assured him that there were some scenes of similar character in Scotland of not inferior beauty and sublimity; and specified one as particularly worthy of his admiration, which turned out to be part of the Scotch laird's own paternal estate. He had, in fact, been born in the midst of natural beauties, so familiar, or so lightly regarded by him, that they had escaped his recollection, or, perhaps, even his notice. A similar indifference is apt to be felt by us towards all objects that are too easily accessible. In such cases familiarity breeds contempt, whilst we are wont to show and to feel unusual zeal and animation when the object of our research is remote, or accompanied in its attainment by the stimulus of difficulty.

Thus it is that we live surrounded by stores of knowledge, of which we rarely avail ourselves; museums which we seldom visit, and libraries which we never consult. Many such neglected mines of knowledge exist in London: many a rich vein is daily trodden, as it were, under our very feet, without tempting us to extract from it the treasure it contains.

I purpose on this occasion to invite your attention to one of the greatest of these depositories of intellectual wealth,—the Library of the British Museum.

Without attempting to bring before you even the shortest or most meagre enumeration of all the objects of interest to the architectural student which that vast repository may contain (such an enumeration would, indeed, be as much beyond my powers as it would certainly be beyond the narrow limits of a lecture),—without attempting any such task, I propose now to indicate to you a few of the more striking specimens of the literary and artistic wealth which are in so great abundance in the library of the British Museum, at our disposal; accompanying them with such remarks as may be naturally suggested by the consideration of the objects themselves, as I enumerate them. I do not design here to touch upon the antiquities at the British Museum: a critical examination of these, or even a correct appreciation of them, would be beside my purposes as well as beyond my powers. To enter that department would assuredly lead us into antiquarian disquisitions, which I am anxious to avoid, as being foreign to my duties within these walls.

The first book I shall advert to is a very large folio volume, descriptive of the great Flavian amphitheatre in Rome; and appears to have been the result of long and careful examinations, made chiefly during the excavations by the French whilst in military occupation of Rome in 1811, 1812, and 1813. The author was a French architect, Mons. Paris, who had long been a resident in that city, having quitted his native country at the outbreak of the great Revolution. He seems to have been a painstaking and intelligent observer; and the delicately-executed drawings of which this volume consists, with the very minute notes explanatory of them, bear testimony to his great carefulness as an architectural draughtsman. He appears to have quitted the practice of his profession as an architect early, and to have been engaged for some years in the decorations of the royal theatres and of the opera at Paris. During his subsequent exile in Italy those studies were made, one of the fruits of which was the magnificent volume I have alluded to.

Probably there never was executed so complete a monogram of any one building. The only subject of regret is that the drawings generally do not distinguish so clearly as one would wish between those parts which are the representations of the actually surviving portions of the building and those parts which are the conjectural restorations of the ingenious antiquary himself. Some of the drawings, however, are not open to this criticism, but are beautifully-executed delineations of the edifice in its revived state; and I can safely affirm that all the drawings bear very strong marks of having been the work of a painstaking and scrupulous artist. The work was intended and fully prepared for publication: it has remained, however, in MS., and ultimately became by purchase the property of the Trustees of the British Museum in 1847.

In many respects the Colosseum at Rome is one of the remarkable buildings of antiquity. It has all the attributes of grandeur. In its actual dimensions, I believe it to be the largest single building ever erected; unless we except the Pyramids of Egypt, which are, perhaps, hardly to be classed as works of regular architecture. Its simplicity of character and unity of design are also sources of grandeur. There is a breadth of manner, and a noble abstinence from trivial ornamentation in its external architecture, which greatly elevate the character of the building. There is a majesty, even, in its stupendous strength. It stands a monument of consummate constructive talent; a talent not parading itself, like a Mediæval cathedral, by the perpetual manifestation of great efforts;—lateral trusts, and counterbalancing weights; huge picturesque masses of masonry piled up solely to resist the tendency to self-destruction constantly

operating on the structure. This immense building, on the contrary, stands, and has stood for eighteen centuries, not by any straining exertion, but simply because all the laws of static science have been scrupulously regarded. I am justified in saying that it has stood for eighteen centuries; because notwithstanding the concussions of earthquakes and tempests, and the erosive agency of natural causes, it still stands with few marks of substantial injury, except those which it has received from the destructive hands of man.

It has been for ages the quarry whence ready-worked stones have been continually abstracted, and whole palaces have been the result of such spoliation. Yet it survives, next after the Pyramids, the greatest architectural monument in the world.—

"A ruin, yet what a ruin! From its mass
Walls, palaces, halfcities, have been reared;
Yet oft the enormous skeleton yè page,
And marvel where the spoil could have appeared."

I must not dwell much on the structural merits of the building; but I cannot refrain from expressing my persuasion that the very ablest practical mason of the present day might study with great profit the jointing, bonding, and bedding of this mass of masonry; while the brickwork is equally admirable;—the dexterous economy of labour by which rubble-work, consisting of broken fragments of stone embedded in Pozzolana cement, is strengthened by an artful introduction of bonding courses of brick; these bricks being often of very considerable size, and always of excessive hardness. All this union of economy of labour with the utmost strength is indeed well calculated to excite the admiration of every practical eye; yet this wise economy of labour and materials, which is apparent throughout, was never allowed to interfere with that stability of workmanship which was evidently a paramount consideration with the builders. The three-quarter columns, for example, of which there are on the exterior so great a multitude, are not built as insulated blocks of stone applied to the surface of the wall for the mere sake of ornament; but are built in and bonded with the general masonry of the walls; contributing, therefore, to their strength quite as much as to their embellishment; in fact, the very reverse of what was very commonly the case with the slender shafts of Mediæval architecture, which were often inserted to give lightness and richness of effect to the pier against which they stand; serving, it is true, to convey to the mind's eye the idea of support to the corresponding members of the archivolts, and continue down their lines; but not practically forming any real integral part of the pier or jamb against which they stand. That this was, at all events, often the case, is obvious from the fact that there are few Mediæval buildings that have not been more or less deprived, either by natural decay or by violence, of their slender nook-shafts; the arch moulding which was made apparently to rest on them remaining, nevertheless, perfectly unaffected by the removal of them.

It must be remembered that in their working the column as an integral part of the wall behind it, as is, I believe, invariably done at the Colosseum, a considerable amount of extra labour and some loss of material were incurred by thus sinking the circular shaft out of the solid block,—a labour and waste, however, which appear never to have been heeded when the perfect stability of the work was in question. These columns, thus constructed, act strictly and effectively as buttresses, giving great lateral support, while they so largely contribute to the ornamentation of the structure.

In like manner we see the vast blocks of stone forming the entablature tailed into and bonding with the rest of the masonry;—not merely laid upon the pillars to convey the idea of construction, but really forming an essential part of the wall masonry.

It is, indeed, very manifest that extreme durability was ever a foremost consideration in the mind of those able Roman masons. A curious instance of this feeling occurs in the construction of the steps of the numerous public staircases. Being open, and therefore constantly exposed to the weather, it is obvious that had the steps been simply laid on each other in the usual way now-a-days, the wet would have been liable to penetrate or be driven through the joints; and so, in the course of years, the gradual but constant penetration of wet would have injuriously affected the vaults and arches beneath on which these steps were laid. To prevent this a very ingenious and, I should imagine, a very effectual contrivance was devised, consisting of a sinking cut into the face of the tread where the riser of the step beds upon the tread of the step beneath it; which sinking, as Mr. Paris very satisfactorily shows, was made to receive a covering, or what workmen call a listing, of mastic or cement of some kind, well calculated effectually to exclude wet.

I must, however, no longer dwell on these practical subjects, which might be multiplied to almost any extent; all tending to prove that there were master-minds among the builders of Rome as well as among its military and political chiefs. Although this wonderful building now presents to our view little more than a vast mass of bare masonry and brickwork, deformed by time and by barbaric depredations, it is not to be doubted that its internal embellishment was as gorgeous as might be expected from Roman builders who so addicted to magnificence, and who might be supposed to be especially lavish in the adornment of this, the most highly favoured

centre of attraction to the pleasure-loving citizens of Rome. Mr. Paris furnishes us with careful drawings of fragments of ornamental details which fully confirm this supposition: minutely enriched stucco linings appear to have decorated the interior of the halls and corridors; and notwithstanding the ravages that these ruins have for ages been subjected to in the search for precious marbles, fragments of fluted columns yet survive, of richly-coloured marbles, carved most elaborately. The extent to which this elaboration was carried may be in some measure inferred from the immense amount of labour bestowed upon so subordinate a detail as the fluting of the shafts of the marble pillars.

It should, however, be observed, in justice to the architects of the Colosseum, that the somewhat excessive extent of minute decoration, as indicated by the few surviving specimens, is confined to the interior; whereas the exterior, both in the constructive features and in the details, is remarkable for general simplicity.

In this building, as in most of the Roman monuments of the best period, a greatness of manner eminently distinguishes its exterior architecture; a circumstance well worthy of your note in the proneness to crowded ornamentation at the present day so prevalent. Without going back to remoter and simpler times, we shall, indeed, find that in Roman art, in its best and purest days, and in Mediæval art at the justly-applauded epoch of the thirteenth century, and in Renaissance art at its period of freshness and beauty, when Bramante and Raffaele designed,—at all these epochs of art we shall find no vulgar overloaded decoration, but abundant evidence of that just appreciation of the value of ornament which knows how to use it with due effect, and when it may be usefully dispensed with.

I will not dismiss this remarkable volume from your notice without noting the extraordinary dimensions of the building which it illustrates. I find the length of the major axis to be 580 feet, and of its minor axis, 480 feet; whilst the height from the ground-line outside the building to the summit of the exterior wall is 160 feet. Mr. Paris makes an elaborate calculation of the actual number of sittings afforded by its marble benches: the result is 44,090 persons. The stories, therefore, of those (like Fontana and others) who represent the number of persons accommodated to have been 80,000, or even more, were either wild exaggerations; or it may be that this high number might have been obtained by counting the multitudes who could have been crowded into the numerous corridors, on the broad platform at the highest part of the amphitheatre, and possibly, too, on the arena itself.

(To be continued.)

ON THE ESSENTIALS OF A HEALTHY DWELLING AND THE EXTENSION OF ITS BENEFITS TO THE LABOURING POPULATION.*

(Continued from page 58.)

UNNECESSARY as it is for me to describe to you the component parts of the air, the process of its deterioration in passing through the lungs, or to dwell further upon those sources of impurity and other accessory influences in and about a dwelling which tend to vitiate the air within, it may be useful, before giving the results of my own observations on the means of obtaining efficient ventilation, that I should notice one important preliminary consideration, that of the space required to keep a healthy man in full vigor, on which very different opinions have been expressed. Experience gained in poor-house dormitories, in prisons,† &c., has led to the conclusion that from 450 to 500 cubic feet are requisite, and that the ventilation should be such as will cause an entire renewal of the air, about once in the hour. Observations made at the Model Lodging-house, in George-street, St. Giles's, which is a confined situation, satisfy me that the cubical space of 585 feet, which is provided in the dormitories of that building for each inmate, is, with proper ventilation, abundantly sufficient to render them healthy; such was proved to be the case, even when the cholera raged in the neighbourhood, and had not a single victim out of the 104 men who lodged within its walls. From this fact I think it reasonable to infer that the unhealthiness of the Wellington Barracks, Westminster, where the cubical space per man allowed in the dormitories is stated to be 500 feet, must have arisen, not from want of space, but from some other existing evils, particularly the defective ventilation, pointed out in the report made to the General Board of Health by the Commission on Warming and Ventilation.

As mistakes with regard to space tend to create imaginary difficulties, and either impede sanitary reform, or cause a serious unnecessary expenditure,‡ I think it of use to notice two recent errors on this point

* Read at the Royal Institute of British Architects by Henry Roberts, F.S.A.

† The space allowed in the cells of prisons should not be regarded as an absolute criterion; at the Model Prison, Pentonville, there are about 800 cubic feet.

‡ The Report of the Government Commissioners on Warming and Ventilation says, at folio 92—"Under all the circumstances, we would urgently direct the attention of the Minister at War and the Horse Guards to the absolute necessity of providing more room and accommodation for the soldier in barracks; and that instead of 500 cubic feet of space, that 700 to 800 cubic feet should be allowed per man, or, as in the case of the Wellington Barracks, that only ten

which have come under my observation—one in the *Quarterly Review*, where, in an article on "Laborers' Homes," it is stated that "The Lodging-house Act requires an allowance of 700 cubic feet per person;" another in a publication by Dr. Druitt, entitled "The Health of the Parish," where it is said that "It has been decided at Bow-street that every inmate of a family ought to have 400 cubic feet of space." On enquiring at Bow-street as to the latter decision, I learned that the magistrates have no power to determine the space, and was referred to the Assistant Commissioner of Police, who informed me "that 30 feet superficial is the space allowed to each lodger in the metropolitan common lodging-houses, the rooms averaging 8 feet high, which is equal to 240 feet cube, and that 50 feet superficial is allowed to each police-constable lodged in a station or section-house, the rooms on an average being 9 feet high," which is equal to 450 cubic feet. The Poor Law Board, without laying down any fixed rule, applicable to all circumstances, adopts as a basis of calculation an allowance of 500 cubic feet for every person in sick wards,* and 800 cubic feet for every healthy person in the dormitories.

Dwellings for all classes of persons, in order to their being healthy, should be so constructed as that they will be everywhere accessible to pure air, and be free from stagnation in any part; and, whilst it is obvious that the state of the surrounding air must have much influence on that within the dwelling, the renewal of the latter should always be sought from the purest source, instead of the supply being drawn, as it often is, from a low damp situation or a confined internal court.

Considered practically, the main question with regard to ventilation is in what way the air which has become vitiated can be renewed with a supply of pure fresh air without the creation of a draught injurious to health? To do this the air must enter copiously, but almost imperceptibly, and when used, or become vitiated, its exit should be both continuous and complete. Ventilation is of two kinds, natural and artificial, the former being effected by means of windows and doors, with the crevices round them, as well as by chimneys and fireplaces, which are important agents in natural ventilation, and may also, by scientific arrangements, be made conducive to an efficient system of artificial ventilation peculiarly applicable to dwelling-houses.

In new buildings improvements may be easily adopted which are not always applicable to old buildings; but, as far as circumstances allow, they should be carried out, from a settled conviction that pure air is indispensable to a healthy state both of body and mind.

Windows properly constructed, made to open at the top as well as below, and suitably placed, afford the most ready means for the natural ventilation of dwellings, besides which are the various contrivances of louvres of perforated glass, zinc, tin, &c.

Chimneys act as ventilators whenever a fire is lighted in a room: the lower stratum of air being immediately set in movement, a current of air is established from the crevices round the doors and windows, or from any other openings towards the chimney, whereby much of the vitiated air is carried off. This process of ventilation takes place in a slight degree when there is no fire in the chimney, and, therefore, bed-rooms are much more healthy with a chimney than without. It should not, however, be forgotten that a large portion of the vitiated air ascends above the chimney opening, and therefore it is essential that a provision be made for its removal thence whenever perfect ventilation is desired.

An independent supply of fresh air may be introduced into most rooms which have a fireplace, by conveying it through a pipe or channel formed under the floor or in the wall to an air-chamber constructed at the back or sides of the stove, in order that it should be there warmed before entering the room. I have seen in Edinburgh a solid fire-clay bed-room chimney-piece and grate formed so as to leave when it is set a cavity round it, which appears well adapted for this purpose. The same or a separate pipe or channel may also be used for feeding the fire with air, independent of that in the room, for this purpose it should pass out at the cheeks of the stove, rather than beneath the grate, which is liable to cause a diffusion of dust in the room. Such a supply of air tends to render chimney ventilating

persons should occupy the space allotted to sixteen; and that these regulations should be enforced as soon as extra spaces can be provided throughout the whole of the United Kingdom." In a previous part of the report, at folio 92, are found the following apposite remarks, which scarcely appear to have emanated from the same mind—"The continuous removal of impure air as it arises is of very much greater importance than the cubical contents of air in a room. In the soldiers' rooms, which are constantly occupied, the amount of cubical space can be of very little importance, for how lofty soever the rooms may be unless the heated and impure air can pass away, the space will soon be occupied by air unfit for respiration, and the greater or less size of the room will only resolve itself into a little more or a little less time before the air is brought into an impure condition." The soldiers' rooms are about 12 feet in height; with good ventilation, this might be reduced to 11 feet or even 10 feet without disadvantage.

* In order that the amount of space now deemed requisite in hospitals may be readily compared with the above, I quote the following:—"In solid-built hospitals the progress of the cases will betray any curtailment of space much below 1,500 cubic feet. In Paris 1,700, and in London 2,000, and even 2,500 cubic feet, are now thought advisable."—Miss Nightingale's "Notes on the Sanitary Condition of Hospitals."

valves more certain in their action than they often are, owing generally to an insufficient draught in the chimney, which causes the emission of smoke into the room. These valves would be invaluable for the discharge of vitiated air, which is their intended purpose, were it not for this occasional ingress of smoke. The most effective means of avoiding that evil is the carrying up an independent flue in close contact with a smoke flue, constantly in use, as that from the kitchen, the air within the ventilating flue is by this means rarefied, and the action of the valve rendered more efficient. Tubular flues, of pottery, made double for this express purpose, are found to answer well, and have the advantage of occupying but little space, whilst they are not liable to the objection pointed out to me many years since by an eminent builder, who found that cast-iron flue linings, having no mortar joints, acted as a dead shore in the wall. In cases where the chimney-valve being fixed in the flue, causes an ingress of smoke, the most effectual remedy is, I believe, Dr. Arnott's smokeless grate, with the draught duly regulated by a contraction of the vacant space over the fire. These grates economise fuel considerably.

Ordinary grates, I may here remark, are alike wasteful of heat and fuel, both of which would be much economised by the substitution of a stove projecting slightly into the room, and combining the chief advantages of the one known as Dr. Arnott's ventilating stove, with the cheerful open fireplace. I have seen some such stoves in use on the Continent, and I believe that the only valid reason against their adoption in England, beyond the force of custom, is the difficulty—not, however, an insurmountable one—of applying them to fireplaces with the ornamental chimney-pieces in such general use. One of the most useful modern improvements in grates is that of forming the back and linings with firebrick instead of iron.

The intimate connexion between warming and ventilation has led to a digression, in returning from which I remark that, in order to render natural ventilation effectual, the openings required for the escape of vitiated air should be placed either in the ceiling or near to it.* How far the admission of fresh air also in the upper part of the room is objectionable, on the ground that the air vitiated by breathing, which ascends in consequence of its relative lightness, is in that case only diluted, and not entirely replaced by pure air, remains, I believe, yet to be determined by properly conducted experiments.

(To be continued.)

WAY LEAVE.

THE adjustment of the claims put forward by the various owners of property along the course of the proposed water-works for improved supply of this city, has opened up a somewhat novel question as to the value of "way leave." The government arbitrator (Mr. Fishbourne) very frankly admits that he does not know anything about it, and desires evidence to be laid before him respecting it; but Mr. Brassington, an eminent valuator, engaged on the inquiry, goes farther and says, that "no surveyor in this country knows anything of it either." This, we apprehend, will prove rather awkward for awhile, but the difficulty may finally be obviated by ascertaining in London, Liverpool, Manchester, Glasgow, and elsewhere, in localities where water-works have been recently constructed, the general principle on which compensation has been allowed for the passage of the conduits, and by adopting as a precedent this principle, according to the various circumstances that may apply to each particular case. In connection with this subject we have to report that, at the inquiry on the 5th instant,

Mr. John Bentley claimed for injury, which, he said, would be done to a house just built by him near to Foxrock, on six acres of ground intended to be laid out as a pleasure ground; alleging that the letting or selling value would be injured by the existence of a right in the corporation to lay the water pipe through portion of the ground at a considerable distance from the house, and a right of entry to repair the pipe.

Mr. Brassington, surveyor, stated that in his opinion the right referred to would seriously injure the letting or selling value of the house.

Mr. E. H. Carson, the architect of the house in question, deposed that, under ordinary circumstances, it would cost nearly £2,000 to build it; that the six acres of land were worth £10 an acre, and with the house would set for over £200 a year. In his opinion the letting value of the house was injured to the extent of £30 a year, and that it was worth in this case 16 years' purchase. There ought to be £100 allowed for the prevention of the setting of

* In a certain description of common rooms, ventilation may be effected by means of wooden tubes perforated with holes, or having chinks at the angles; in some cases they may be carried across the ceilings, and in others be fixed at the angles. They have also been used for admitting fresh air as well as for the exit of vitiated air. These tubes distribute the air more generally, and are not so likely to be closed as either Sherringham or Hart's Ventilators, both of which are very useful in many situations. A cheap cottage ventilator may be made with a triangular piece of zinc, fixed in an upper angle of a window, and perforated in the centre with a projecting rim formed round the perforated part, in order to receive a movable cover, which may be hinged.

the house at all until the pipe was laid, and the works at that place finished.

Mr. W. Bentley corroborated his brother's evidence, that they jointly owned the land in that district, and that witness agreed to execute a lease to his brother of the 6 acres in question at £6 an acre as a compliment. This was a verbal agreement in 1861. The lease was not executed, but would be; had heard of the progress of the water-works bill act in 1861. On the 25th June, 1861, the contract was made with the builder for their house. It was not commenced till some time after he was aware the company's plans were lodged.

The case stands for evidence on the part of the corporation.

JUSTICE ASSIZE NOTES.—SPECIAL REPORT.

IMPORTANT MEASUREMENT QUESTION.

ARMAGH.—*Kearnes v. Moffett*—Action by plaintiff, a working bricklayer at Portadown, for recovery of balance alleged to be due on foot of account, for work done in erection of weaving sheds and workers' houses for defendant, a manufacturer in same town. Defendant pleaded non-liability, inasmuch as, that he had paid plaintiff for the full value of said work. An agreement had been entered into between the parties that the work was to be measured at completion, and paid for at the respective rates of one shilling per "perch" for brickwork, and two shillings for masonry (labour only). Plaintiff alleged that the work referred to had been measured and valued, such measurement and valuation having been based upon the statute perch, and claimed certain allowances in addition for the construction of arches, jambs, eave course, &c., and for the setting of window-stools, door blocks, and the like—his interpretation of the statute perch being five and a-half yards long by the recognized height and thickness—in all about £240. Defendant maintained that the custom of measurement was regulated by the Irish perch of 21 feet in length by 1 foot in height, by 1 foot 6 inches in thickness for stonework, and 9 inches for brickwork; also, that in ordinary work for labour only the other allowances claimed were untenable, and that if the ruling were in favour of the statute "rod," the verdict must be against plaintiff, as the latter is five and a-half yards square reduced to brick and a half thick, and that such measurement does not apply to stonework at all, it being by the cube yard. Deductions were also claimed for inaccuracies in the measurement return. After the examination of several witnesses, a verdict was ultimately arrived at upon the basis of a valuation made by Mr. W. J. Barre, of Belfast, architect, amounting to about £113, which proved an over payment to the plaintiff of about £7.

LONDONDERRY.—*Louch v. Crawford; Crawford v. Louch*.—Action and cross action: the former for amount of fees for professional services as an architect, in designing the laying out of building sites on the property of defendant in the city of Derry, in the preparation of certain plans and specifications for buildings thereon, and for superintending the erection of works carried out; the latter for damages alleged to be sustained in permitting deviation from the original design in the line of frontage of one block of houses erected thereon.

[The particulars of the above cases, which had not come on for hearing at the period of our going to press, shall appear in *extenso* in our next number, as they involve many matters of interest to the profession generally. A large number of witnesses on both sides are in attendance, including, on behalf of the plaintiff in the first case, and defendant in the second, Messrs. Williamson, C.E. (County Surveyor), W. J. Barre, John Guy Ferguson, and J. J. Lyons, architects; and on the opposite side Messrs. McCurdy and Boyd, architects.—ED.]

ANTRIM.—*Lennon v. Sherrard*.—Action for dilapidations to house and premises near Belfast, leased by plaintiff to defendant. Defendant admits liability, but not to amount claimed, and the damages are to be assessed by the sheriff.

[Further report when case is decided.—ED.]

Injury from a Watercourse.—At Sligo assizes, in re Beatty v. Guardians Sligo Union, civil bill appeal.—Mr. Caldwell, an engineer, proved that the sluices erected by the defendants for the discharge of the waters of the adjoining district in the year 1859 were insufficient for that purpose. A man named Ferguson proved he knew the place for thirty years, and never had any cause of complaint before the guardians had constructed the works in question, but since that period his lands, as well as others in the neighbourhood, had been flooded. On behalf of the defendants, Mr. St. Leger, the county surveyor, proved that he constructed the works, and repaired them in 1859, and that in the latter year the sluices were in a very imperfect state until so repaired by him; that the last year was an unprecedented wet season, and caused an inundation of the river, which overflowed its banks and sent a quantity of water into the district from whence the watercourse flowed, which caused an unusual increase, which the works were not intended to accommodate. Dismiss affirmed.

TOWNS SURVEY.

BALLINASLOE.

THE concluding syllable in the nomenclature of this town conveys an adequate idea of its position in the march of progress. Since our last visit, about two years since, very little improvement has been effected, and nothing of any importance, that we could learn, is in contemplation. Arriving at the railway station, extensive tracts of valuable land under water are presented to the eye at either side, in many places sufficiently deep to be navigable by small craft, and in numerous districts, both adjoining this and other towns along the banks of the Shannon and its tributaries, a similar state of desolation is visible. Owners of property so circumstanced have held meetings—which, from the position of those who took part in the proceedings, might be presumed to be “influential”—and have adopted petitions to government to grant remedial measures, but as yet all to no purpose.

A small structure of Gothic character and—as far as we could judge of its features in its present state—of neat design, is being erected for hotel purposes close to the station; but—we may remark *en passant*—the skill of the contractor in “*hydrostatics*” must have been somewhat taxed in building the foundations, which from the causes before referred to are immersed in water. The station itself has been slightly augmented, and is, we presume, now sufficiently capacious for the traffic, which, except on the occasion of the great annual fair, is not very considerable. It occurs to us, however, that the railway company would simultaneously serve their own interest and confer a benefit on the travelling public by starting an early train from Athlone to Galway, instead of obliging passengers at the former town and at the intermediate stations to await the arrival of the Dublin morning train, which, at Ballinasloe—for instance—is not due till 12 13 p.m. We are sure that this suggestion, unless attended with difficulties unknown to us will not be lost on the efficient and obliging traffic-manager of this spirited conducted line. However, proceeding towards the town, we find that three detached villas—two of which are tenanted, and the third not so—have been recently erected, on the main approach thereto from the railway, by Lord Clancarty, from the designs of Mr. Kempster, county surveyor, whose name is also associated as architect with the hotel before alluded to, and almost every other building-works of recent date in Ballinasloe and neighbourhood. The same gentleman is also, we understand, superintending the erection, at some 15 miles’ distance, of a large and costly mansion for Lord Dunlo. A few labourers’ cottages have been built by Lord Clancarty, and these with some unimportant additions to the Presbyterian church may—in addition to the works previously enumerated—be said to comprise the sum total of improvements in the town during the period in question. If his lordship could be induced to extend his outlay of capital in the erection of suitable dwellings for the middle classes also, we doubt not that the return would be proportionately remunerative. Stricter attention to the sanitary state of the town ought to be paid by the commissioners, and in many localities the neglect in that regard is most flagrant. Partly from this cause but mainly owing to the marshy state of the town lands, epidemics—scarletina especially—are prevalent. We shall visit again in course of ensuing summer, and hope to report more favourably.

BAILIEBOROUGH.

This town has risen rapidly during the last two years; upwards of twenty new and substantially-built houses having been erected, and more are in progress. The farms in the union are of medium size, averaging from 80 to 85 acres; rent about £1 per acre. The comfortable appearance of the farmers and dealers who attend the abundantly-stocked market is a subject for special remark, when comparison with those in other towns is instituted. Want of banking accommodation is very much felt, the nearest establishment of that kind being some 14 miles distant; nevertheless, large sums of money from this town are therein deposited. We are assured, that if the enterprise of some of our banking companies who have branches in the provinces were extended to Bailieborough, it would be attended with advantage, and the suggestion is, at least, worthy of their consideration. Public meetings have been held lately in the court-house, to discuss the relative merits of two railway projects, viz., the continuation from Kells *via* Mynally, and that from Carrickmacross *via* Shercock. The former appears to have secured a preference from the mercantile classes. There is an excellent national model and agricultural school, as also a classical. The general appearance of the town indicates increased and increasing prosperity, which we have much pleasure in recording.

ARCHÆOLOGICAL REMAINS AT ADARE.

RECENT Festivities—at which the Lord Lieutenant and numerous members of the nobility and gentry were present—in commemoration of Viscount Adare, eldest son and heir of the Earl of Dunraven attaining his majority, have introduced to special notice the

highly interesting architectural features of “the Manor.” In speaking of the ruins of the castle the *Freeman* has the following:—“This venerable structure was originally built by the O’Donovans, but entirely re-erected by the second Earl of Kildare in 1826. It was partially burned down by the famous Turlough O’Brien in one of his marauding expeditions to this part of the country and afterwards repaired by Thomas Earl of Kildare. On the rebellion of Silken Thomas the castle and estates were confiscated, but were subsequently restored to the Desmond family. During the Elizabethan wars the building was besieged by the English, and taken after eleven days. In 1581, the Earls of Desmond and Kerry attacked and took it, putting the English garrison to the sword. It changed hands more than once afterwards, but was finally dismantled by Cromwell. The ruins are very extensive, and most picturesque in appearance and situation, the river Maigue flowing just beneath its embattled walls. The tower is still in a good state of preservation, and admits of a safe ascent to the summit which commands a fine view of the surrounding district. One of the most prominent features in the landscape in Knockpatrick, a mountain near Foynes, the summit of which tradition records to have been one of the first places in Ireland pressed by the apostle of Christianity in Ireland. This tradition has inspired one of the most exquisite sonnets in the English language, from the pen of Sir Aubrey de Vere, which I am tempted to repeat here:—

There is a moment of intense delight,
When standing on the scene of some great deed,
We mark where human intellect for right
Hath triumphed, as at bloodless Runnymede;
Or where the victim Spartan’s rushed to fight,
Self-sacrificed, that Hellas might be freed;
Or in the halls, with Raphael’s soul still bright,
Or Chatham’s tomb, by Senate Kings decreed.
In such a mood on this bold height I stand,
Where first the holy pilgrim Patrick trod;
And as he gazed round on the glorious land,
Like Pisgah’s seer, stirred by the inward God,
With the deep weight of prophecy oppressed,
Looked forth and blessed the land—and it was blessed.

At a short distance are the ruins of an ancient church, containing several interesting monumental remains of a very remote origin. One of these is in memory of some members of the Dunraven family. Just outside the manor gate is the Black Abbey, now the Catholic church of Adare. It was founded in the 13th century by John, the first earl of Kildare, who dedicated it to the Holy Trinity, and endowed it for the redemption of Christian captives. The remains, which consisted of the tower, nave, and part of the choir, were completely restored by the late Earl of Dunraven, who devoted the sacred edifice to the purpose for which it is now fittingly used. The interior of the chapel, which is finished in the pointed Gothic style, is extremely elegant, having been handsomely decorated by the present earl. The parochial Protestant church, which stands at a short distance to the south-east of the Black Abbey, is, like it, a restoration of an ancient ecclesiastical building. It was once a Franciscan abbey, and was founded by Thomas the seventh Earl of Kildare. The late Earl of Dunraven restored it to its present condition, since which it has been used as the parish church. His lordship also erected in connection with it a splendid family mausoleum.”

We have received the following circular, and commend its contents to the consideration of our readers:—

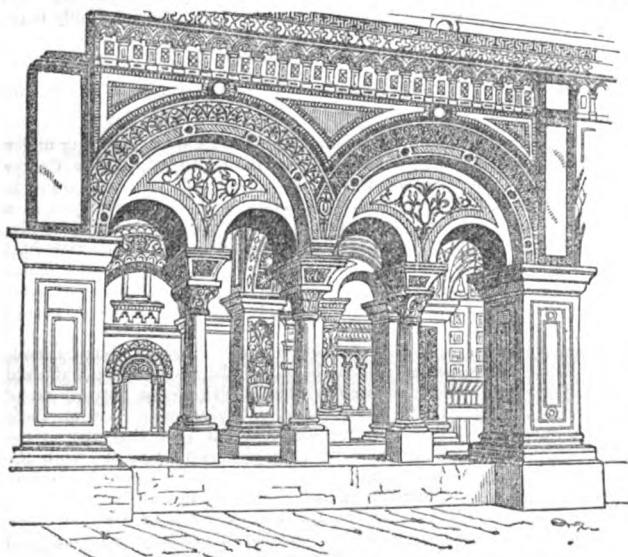
“The Council of the Builders’ Association desire to bring under your notice the case of Mrs. Phayre, the widow of the late George Phayre. Mr. Phayre was closely connected with the trade in Dublin and throughout Ireland, being extensively employed as a building surveyor and measurer. It has pleased God to take him away early in life, leaving a widow and three children unprovided for. The fact that his father, John Phayre (formerly of William-street), was for many years a builder in this city, whose character for integrity and skill ranked among the highest in his time, invites your sympathy. Further, the close connection which the deceased has had with most of the existing members of the building business, claims your generous help on behalf of those, who without this aid must remain desolate as well as afflicted. But even putting out of view the claims which this bereaved family surely have on those connected with the trade, we feel confident that the cause of the widow and the fatherless will not plead with you and with the public in general in vain. And on these grounds we anxiously look for your liberal contribution, and we promise that to the best of our ability, we will see that the funds entrusted to us are judiciously expended. All contributions will be thankfully received and acknowledged by George Moyers, Esq., 8, Harcourt-street, treasurer; William Crowe, Esq., 52, Brunswick-street; James Beardwood, Esq., 10, Westland-Row; S. H. Bolton, Esq., 38, Richmond-street, South; Matthew Lynch, Esq., 34, Camden-street; or by Thomas Henry Carroll, Esq., 17, Lower Baggot-street, Secretary, *pro tem*.”

CRYSTAL PALACE (SYDENHAM) ARCHITECTURE.

(Continued from page 41.)

RESUMING the consideration of Byzantine church architecture, we may mention that its great characteristic was a plan formed on the Greek cross, and surmounted at its points of intersection by a central dome. The direct imitation of the antique capitals was eschewed, and a foliated capital was introduced in its place, varying considerably in pattern even in the same building: the arch was in general semicircular, and the use of mosaic ornament universal, but it was some time before the Byzantine style received its full development; for the earlier Christians generally maintained a profound antipathy to all Art, as ostentatious, and savouring overmuch of worldly delights. It is not, however, in the nature of man to exist for any length of time in this world, wondrously adorned as it is by its Divine Creator, without imbibing a love for the adornment so profusely displayed around him. This natural feeling, which St. Augustine and the stricter Christians vainly sought to decri and repress, was strengthened and aided by the more forcible notion of holding out some attraction to the pagans, who, accustomed to the ceremonies and charms of their old rites, might be repelled by the apparent gloominess of the new creed. As the number of converts increased, a demand for church ornament made itself felt, and Art once more awoke, not in the excellent beauty of its former life, but rude, unpolished, and crippled by religious necessity, which placed, as in Egypt of old, a restriction upon the forms of nature, lest by copying them the people should relapse into the idolatrous worship of graven images. In the Eastern or Greek Church, even the rude and grotesque sculpture first allowed was speedily forbidden and banished for ever. The mosaic painting, however, was continued by Greek artists, and this peculiar style of ornamentation is one of the most distinctive features of Byzantine architecture. Not only were the walls and ceilings covered with extraordinarily rich examples of glass mosaic work, formed into pictures illustrative of Scripture subjects and saintly legends, or arranged in elaborate patterns of geometrical and other ornament, but columns, pulpits, &c., were rendered brilliant with its glowing colours. Mosaic work also is at times found on the façades of the Byzantine buildings; whilst the pavement, if less gorgeous, was at least as richly ornamented with coloured inlay of marble mosaic. As we have, however, just observed, the fear of idolatry led to the comparative neglect of sculpture, and the edict forbidding the sculpture of images for religious purposes became one cause of the separation of the Latin Church in Rome from the Greek Church in Constantinople, and thenceforth the two churches remain distinct. In the former, sculpture continued to exist, not as an independent art, but as a mere architectural accessory.

Byzantine architecture flourished from A.D. 328 to 1453; but the Byzantine proper can be said to extend only from the 6th to the 11th centuries. Romanesque architecture in its various developments was more or less impressed with the Byzantine character, and in its general features resembles the source from which it was in a great measure derived; although the dome is generally absent in

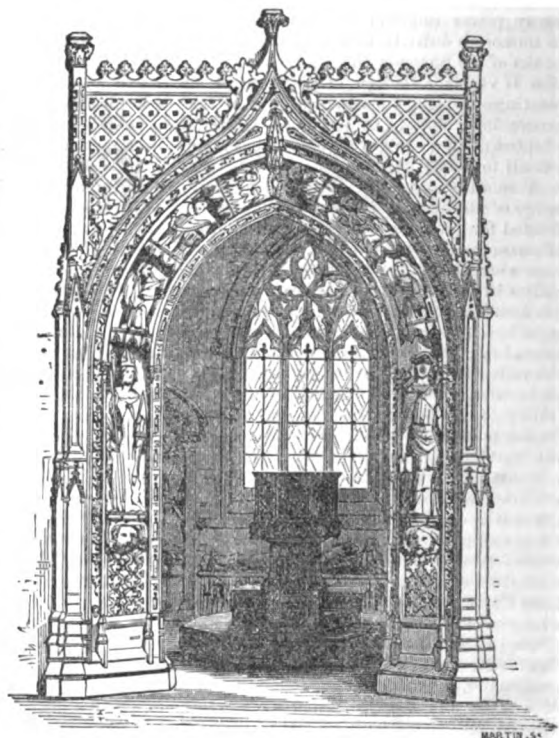


BYZANTINE COURT (Arches from the Nave).

the churches of northern Europe, which retained the plan of the old Roman basilica in preference to that of the Greek cross, for a long time peculiar to the Eastern Church.

ENGLISH MEDIEVAL COURT.

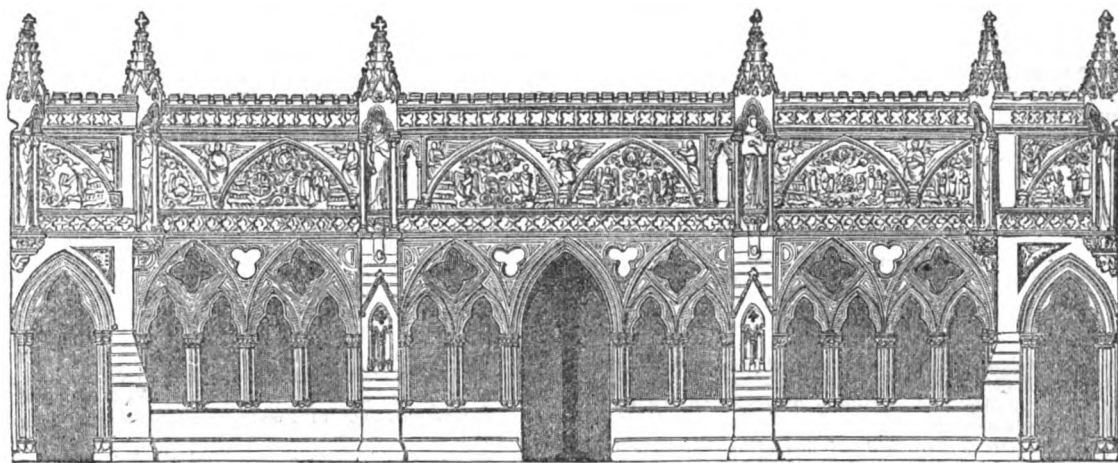
Entering this Court from the nave, we find, immediately facing us, the magnificent doorway from Rochester Cathedral, coloured so as to give an idea of its appearance when first erected. The different faces, "making mouths," introduced amongst the tracery of this door, afford a good example of the grotesque spirit which forms so strong an element of Gothic architecture.



DOORWAY FROM ROCHESTER CATHEDRAL.

On the left of the door is a portion of the arcading from the Chapter House of Wells Cathedral, and next is the richly-decorated Easter sepulchre, from Hawton Church, Nottinghamshire, representing the Resurrection and Ascension of Christ—a very remarkable monument of the 14th century. At the foot are the soldiers on guard at the sepulchre, sleeping, and in the centre (the altar-table) the Resurrection of our Lord, bearing his cross; the three Marys in adoration at his feet. Above is the Ascension, the Apostles standing around. This last subject is treated in an original and ingenious manner, to come within the lines of the architecture. This monument was used as an altar; various rites being performed before it, between Good Friday and Easter-day. A seated figure, from the front of Lincoln Cathedral, is the next subject; and further on, in the angle, is a Virgin and Child, in a niche—a beautiful piece of early 14th century work from York Minster; and next is a portion of Bishop Alcock's chantry chapel, from Ely Cathedral; on the other side of the adjoining doorway, which is a composition chiefly from the triforium of Lincoln Cathedral, we remark the very beautiful oriel window of John o'Gaunt, at Lincoln, and next to it a portion of the elaborate altar-screen of Winchester Cathedral.

Indeed all the subjects in this Court are full of value and interest, and the numerous examples of Gothic art here collected, which we have not space to describe in detail, form a museum in which the visitor may obtain no inadequate idea of the rich treasures in this wise of our country. Passing beneath the Rochester doorway, we enter a vaulted and groined vestibule, the window of which is a beautiful example of the Decorated style, from Holbeach, in Lincolnshire, filled in with rich stained glass. Beneath the window is the painted monument of John of Eltham, son of Edward II., from Westminster Abbey, on either side statues from Wells Cathedral. In the centre is the very richly-decorated font, from Walsingham, in Norfolk, an excellent example of the Perpendicular style. The walls of the gallery are lined with statues and monuments; those on the garden side are all English, principally from the façade of Wells Cathedral; those on the side of the Court are chiefly from Germany and France. Amongst the latter, we draw particular attention to the bas-reliefs on the walls,



ELEVATION OF ENGLISH MEDIEVAL COURT TOWARDS THE CLOISTER.

from Notre-Dame, Paris, as excellent examples of early French Gothic. Amongst the central monuments should be particularly remarked, behind the German Mediæval Court, the Arderas tomb, from Elford church, Staffordshire; the monument of Henry IV., and Joan of Navarre (his queen), from Canterbury Cathedral; the tombs of Sir Giles Daubeney, Richard II., and Anne of Bohemia (his queen), from Westminster Abbey, of about the year 1507; and behind the French and Italian Mediæval Court, the splendid monument of Richard Beauchamp, Earl of Warwick, from Warwick, one of the finest Gothic sepulchral monuments remaining in England.

(To be continued.)

THE IRISH MEMORIAL TO THE LATE PRINCE.

So far it has been decided that the memorial to be erected in London in commemoration of the late-lamented Prince Consort shall, in its main feature, partake of the form of an *obelisk*, be its accessories and decorative parts what they may; but a question arises—viz., will the Irish—who are now proceeding with arrangements for an *independent* memorial in this city—be induced to adopt a similar form for theirs? The obelisk finds little favour at our hands, regarding it, as we do—but with all due submission to the better taste perhaps of its advocates—devoid of poetic expression (so essential to a memorial) as presenting impediments to the free exercise of design in its treatment, and as constituting, however judiciously handled by an artist, a meaningless and graceless whole. An obelisk, in conjunction with a building, would be a simple monotony, and without it, it always—as in the instance of our Wellington testimonial—illustrates most forcibly the suitability of the designation of “an overgrown milestone,” with which a royal personage is popularly known to have *dishonoured* it. It may be somewhat premature to speculate on this matter just yet, but we err perhaps on the right side if we remind the committee, that their task involves, not alone the raising of a structure for a memorial, but the choice of a *suitable* form and design which will do justice to our national art resources, also the selection of a site whereby a contribution to the ornamentation of the city may be afforded simultaneously with the achievement of their most laudable project. Our memorial attempts up to the present have, to say the least, *not been successful*, and indiscretion now, where so important a subject is to be dealt with, will—however excellent the intention—effect the perpetration of an object whereat posterity may smile sarcastically, rather than inspire regard and admiration for their forefather’s artistic capacity and refined taste. Suggestions have already found ventilation through various channels—the DUBLIN BUILDER included—of a desire to associate this memorial with the new Carlisle Bridge (should same ever be matured), but to this also we must, for the sake of art and *common sense* combined, take unqualified exception. As a figure of the deceased prince, the memorial should here be presumed to take form; but ridiculous as would appear an isolated statue on the battlements of a bridge—or at all in connection therewith—more so would be a *grouping* of figures, like (to use a vulgar but most applicable phrase) “crows perched upon a haystack,” inharmonious with the character of the structure, and proving a most offensive obstruction to the vista now obtained at this point, which our quays, of unsurpassing beauty, afford. A warning in

time is here conveyed to the respective committees of these two projects, and should the ulterior result unfortunately require our reference thereto in self justification, we shall—while deploring it—at least be satisfied at having, in the pursuit of our peculiar mission, done *our duty* to the public, which is deeply interested in both. The probability, however remote, of an equestrian figure finding favour, is also replete with concern to our mind; and scarcely less so is that of a columnar composition. Truly it shocks one’s nerves to behold, “stuck up” on the superstructure of a great arch, a black charger—with “fiery mane,” and of proportions modelled after some brewer’s or carter’s most prodigious specimen—sustaining a rider, who, though elevated above the creatures of earth, seems most uncomfortable at his dignity; and the same remark is applicable to a statue forming the termination of a column, decapitated of its entablature, and “curtailed in its fair proportions.” Let us, as a single example of what a *suitable* memorial is, adduce that at Edinburgh to the late Sir Walter Scott, which comprises a Gothic composition, with open central space or thorough niche, containing a bust of the eminent deceased, under canopied gablets, and terminated by a crocketed spire, attaining considerable altitude. Here architecture and sculpture unite hand and hand, as they should do; and this *form* of memorial, though the style may be considerably varied to suit circumstances, is the most fitting for adoption for that in question here.

CARLISLE BRIDGE.

We are apprised that some disappointment has been experienced by intending competitors, who,—responding to the advertisements recently issued by the committee announcing prizes for approved designs for the proposed new bridge, and referring to their secretaries for information,—were unable to procure various particulars relative to levels, &c. But we are happy to be in a position to state, that the committee can now supply to such engineers or architects as may desire to enter the lists, full information, having engaged Mr. Sloane, C.E., for that purpose.

STAINED GLASS AT ST. PATRICK’S CATHEDRAL.

We are glad to perceive the good taste and judgment displayed by B. L. Guinness, Esq., in introducing in the side windows of St. Patrick’s Cathedral glass of that greenish irregular tint, so characteristic of the middle ages, and which harmonises so well with the ancient style and character of the building, producing that sombre, dim, religious light so essential to an ecclesiastical edifice. The work has been executed at the Messrs. Casey’s stained glass works, 82, Marlborough-street. We presume that hereafter we shall have occasion to note particulars of the stained glass in the great west windows of the nave and of the south transept, two important works included in the “Guinness restoration.”

INSTITUTION OF CIVIL ENGINEERS OF IRELAND.

A GENERAL meeting of the institution was held in the Museum Buildings, Trinity College, on the evening of the 12th instant. Mr. William Anderson, member, read the second part of his highly interesting paper, on “The Re-construction of Malahide Viaduct, on the Dublin and Drogheda Railway.”

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At the ordinary general meeting of this body on the 3rd instant, Professor Kerr took occasion to recommend "the Architectural Dictionary" to the attention of the profession. Vice-President Digby Wyatt (Chairman), confirmed the recommendation and proceeded to state with reference to the proposed "Albert Memorial" that a letter had been received by the president from a member of the committee chosen by her Majesty, seeking that the Institute should communicate with them with regard to the description of stone most desirable, as to quality and colour, for an obelisk 100 feet in height; and also as to the probable cost of carrying it, by land or sea, to the metropolis.

The Honorary Secretary then announced the adjudication of the various medals and prizes of the Institute, also of the Soane Medalion—neither of the designs submitted for same being of sufficient merit to obtain it—in substitution for which, books to the value of five guineas were awarded to the best. Papers entitled respectively "Some particulars respecting the Plans and Construction of the Westminster Palace Hotel," by Mr. A. Moseley, and "Some Account of the London Bridge Railway Terminus Hotel," by Mr. Henry Currey, were then read.

Mr. James Carrick gave a description of an hydraulic hoist, designed for the Westminster hotel; and Mr. Thorne, the inventor of the system of bells carried out in the Westminster Palace Hotel, also described his invention, which he said had proved completely successful.

A lengthened discussion followed.

Mr. Lewis announced that the next lecture, on the 17th instant, would be by the chairman of that evening, on "Pictorial and Mosaic Decorations for Walls."

BOILER EXPLOSION.

THE numerous accidents that occur, from steam boiler explosion, involving destruction of property and life, imperatively demands that a strict inquiry should be instituted, with a view to discover the cause of these fearful catastrophes, and to devise preventive measures, calculated to afford a proper remedy for the evil. The origin of these casualties often remains obscured in mystery, but in many instances, they are attributable to ignorance, or may be traced to neglect. It happens, that in some cases, the risk might be obviated by means of a simple precaution that can be easily adopted on all occasions, which consists in feeding the engines with "warm" instead of "cold" water, whenever a supply is wanted. The fact has been ascertained by several experiments, that cold water suddenly brought in immediate contact with caloric generates high electrical action, that is found to increase proportionately, according to the degree of intensity to which the articles become heated, and when the temperature of the water applied ranges below freezing point. Boilers in this condition are subjected to violent shocks, from which influence they often burst like bomb-shells, and the fragments are scattered to a considerable distance. Other substances are affected in the same manner on a small scale. Paraffin lamps frequently explode in consequence of replenishing them with cold oil, while heated from burning, an imprudent and dangerous practice, that cannot be too quickly abandoned. The expansive nature of steam differs essentially from explosive force, and produces results of a distinct kind. The peculiar qualities of steam, in a confined state, are exhibited by a constant and powerful pressure, against the resisting iron boiler plates, tubes, and cylinders, by which it is enclosed, exercising its active energies to open a passage for escape. The strength of the gigantic agent is divided from this source, which scientific ingenuity combined with mechanical skill has rendered subservient to control, by perfect contrivances that impart motion to inert bodies through its instrumentality.

An expedient of this description is capable of being employed with safety to an unlimited extent for a variety of purposes, in a mode that has proved of incalculable value by abridging labour and aiding production. Judicious management forms an indispensable requisite for the regulation and guidance of the executive department, a work that serves materially to ensure success in all pursuits, and diminishes the chances of failure incident to every enterprise. The primitive injunction to man, "Subdue the earth," appears to advance with rapid strides towards fulfilment. The process being principally conducted and mainly achieved through the wonderful operations of *electricity and steam*.

MANUFACTURE OF STONE.*

MR. RANSOME, of Ipswich—whose name has for many years been prominently before the public in connection with the several processes patented by him for the production of artificial stone, and more recently as having introduced that process for the preservation

of natural stones liable to premature decay, which has excited so much attention in reference to its application for preserving the stone-work of the new Houses of Parliament—has recently discovered an entirely new and extremely simple, but at the same time most important and effective process, by which some of the commonest and most abundant natural materials may be combined and formed into solid blocks of masonry, or moulded into the most elaborate works of art, at a cost comparatively so trifling as to place the means within the reach of all. The process is based on the soundest scientific principles; and its efficiency has been severely tested by some of our most eminent chemists. Its merits have thus been completely proved.

It has long been known to the scientific world that the peculiarity of Mr. Ransome's process for preserving stone from decay consisted in the production within the pores of the stone itself of silicate of lime, a substance which possesses the most enduring properties, and, in fact, is really that which has conferred such durability on the old Roman mortar which we see remaining unchanged by the exposure to the weather and other destructive influences, often for more than two thousand years; and it is this substance also which in the main is the combining medium of the best natural limestone and hydraulic cements.

Mr. Ransome has hitherto accomplished the induration by first saturating the stone with a solution of the silicate of soda (soluble glass), and by afterwards applying a solution of chloride of calcium (muriate of lime). Here double decomposition takes place, the silica combining with the calcium to form a solid silicate of lime, and the chlorine at the same time combining with the soda, forming chloride of sodium or common salt, which is removed by subsequent washings or otherwise. It was in noticing the enormous cohesive properties exhibited by the silicate of lime thus produced that Mr. Ransome was led to investigate the applicability of that material as an essential ingredient in the manufacture of stone itself, and the results of his experiments have proved so successful that he at once patented them. The new process consists in mixing common sand, chalk, or other suitable mineral substances, with a solution of silicate of soda into such a consistence that the mixture can be easily moulded into blocks or any other forms, rolled into sheets or slabs, or even applied with a trowel as ordinary cement. Afterwards a solution of chloride of calcium is applied by means of a brush or by immersion, as may be most convenient. The effect is instantaneous, the material is immediately converted from a soft soluble substance into a hard insoluble compound, capable of resisting the influences of the most deleterious atmospheres, and possessing the property of gradually increasing in hardness with the lapse of time.

Amongst other advantages which Mr. Ransome has secured by his discovery in the above process, it will be evident to all conversant with such matters that the stone can in most cases be manufactured upon the spot, from materials obtained in the locality; that it can be moulded into any form or made in masses of any dimensions; that it is equally available for ornamental and decorative as for constructive purposes. It requires no artificial drying or burning, while it is in no way liable to shrinkage, warpage, or distortion of any kind; moreover, it is stronger and harder than any of the natural stones at present in use. It exhibits all the characteristic features and appearance of the best freestone, can be produced of any desired tone of colour, while it is proof against those destructive influences which so seriously affect our natural building stones.

The high standing of Dr. Edward Frankland led, as is well known, to his official appointment by the Government to investigate the causes of decay of the new Houses of Parliament, and his testimony, therefore, has a scientific importance which induces us to quote from it. In his certificate he says, speaking of the tests to which Mr. Ransome's new stone has been subjected:—

"The chief object of these experiments was to expose the samples to influences similar to those to which the stones themselves would be subjected, when used for outside work in our large cities; but in order as far as possible to arrive within a moderate time at results, which under ordinary circumstances would only be obtained after the lapse of many years, it was necessary to intensify those influences by presenting the various chemical re-agents to the stone more continuously, and in a more concentrated form than would be the case in the ordinary atmospheric degradation to which building stones are exposed. . . . The experiments were made in the following manner:—The samples were cut as nearly as possible of the same size and shape, and were well brushed with a hard brush. Each sample was then thoroughly dried at 212 degs., weighed, partially immersed in water until saturated, and again weighed; the porosity or absorptive power of the stone was thus determined. It was then suspended for forty-eight hours in a very large volume of each of the following acid solutions, the alteration in weight after each immersion being separately estimated. Solution No. 1, water containing 1 per cent. sulphuric acid; solution No. 2, water containing 2 per cent. sulphuric acid; solution No. 3, water containing 4 per cent. sulphuric acid. The sample was then boiled with water until all acid was removed, and again weighed. Finally, it was dried at

* From "The London Review."

212 degs., brushed with a hard brush, and the total degradation or loss since the first brushing was ascertained."

Name of Stone.	Porosity Per centage of water ab- sorbed by dry stone.	Per centage alteration in weight by immersion in dilute acid.						Total percent- age loss fur- ther than that of acid and by subse- quent boiling in water.	Total degra- dation from all causes.	
		Of 1 per cent.		Of 2 per cent.		Of 4 per cent.				
		Loss.	Gain.	Loss.	Gain.	Loss.	Gain.			
Bath	11.57	1.28	—	2.82	—	2.05	—	5.91	.26	6.17
Caen	9.86	2.12	—	4.80	—	.67	—	11.73	1.60	13.33
Aubigny	4.15	1.18	—	4.00	—	1.04	—	8.56	.29	8.85
Portland	8.86	1.60	—	1.10	—	1.35	—	3.94	.24	4.18
Anston	6.09	3.52	—	3.89	—	3.11	—	11.11	.27	11.38
Whitby	8.41	1.07	—	.53	—	none	none	1.25	.18	1.43
Hare Hill	4.31	.75	—	.60	—	none	none	.98	.15	1.13
Park Spring	4.15	.71	—	.10	—	.15	—	.81	none	.81
Ransome's Patent	6.53	—	.95	none	none	none	none	.63	.31	.94

There was no loss with 2 per cent. or with 4 per cent. of dilute acid, and only the fractional portion of a single part, as shown in the total of degradation from all causes.

The comparisons in Dr. Frankland's table of experiments, whilst they point out the Portland, Whitby, Hare Hill, and Park Spring, as the natural stones best adapted to withstand the influences of town atmospheres, indicate Ransome's patent concrete is equal to the best of these in its power of resisting atmospheric degradation; and the newness of Ransome's stone (the specimens experimented upon not having been made a fortnight) being taken into account, together with the well-known fact that its binding material, silicate of lime, becomes harder and more crystalline by age, have led Dr. Frankland to express the opinion that it is likely "Mr. Ransome has invented a material which, with the exception of the granites and primary rocks, is better capable of giving permanency to external architectural decorations than any stone that has been hitherto used."

Mr. Ransome is still engaged in further experiments for clearly establishing the unmistakable superiority of this new artificial stone, and especially of its powers to support a crushing weight, and to sustain strains under varying conditions. It is said to possess very superior properties in these respects, and we shall shortly be in the position to give the results of the trials now going on. Every step in this important process, which seems likely to produce a complete revolution in constructive and ornamental operations, cannot but be watched with great interest.

METROPOLITAN AND SUBURBAN IMPROVEMENTS.

It is in contemplation to erect a new Roman Catholic Church in the parish of Donnybrook.

In the Consistorial Court on 5th inst., relative to the rebuilding of St. Andrew's Church, Mr. Arthur Samuels, said, he appeared on behalf of the committee, to whom the arrangements for the rebuilding was vested, to apply to the Court for a faculty to take down the old church and employ the materials in the erection of the new edifice, which would be on a somewhat larger area than the old one, and would consequently require the transference of some of the graves. For this transference he was instructed to move for a licence; it being understood that suitable vaults would be made in order to carry out the removal. The plan selected for the new structure was that of Messrs. Lanyon and Lynn, of Belfast, and Mr. Butler had been accepted as contractor. The cost would be something over £7,000. His Lordship granted the application. It is understood that the faculty having been obtained for taking down the former church, the rebuilding will be proceeded with immediately.

Three first-class houses are in course of erection on the Elgin-road for Captain Seton. Mr. W. F. Calbeck, architect, and Mr. Thomas Connolly, Rathmines, the contractor.

It is proposed to open the new Molyneux Asylum and Chapel early in May.

Four detached villa houses are to be built at Old Merrion, on the Beach-road; Mr. W. R. Farrell, architect.

Two semi-detached houses are to be built on Glenart-avenue, Blackrock; Mr. W. R. Farrell, architect.

NOTES PROVINCIAL.

It is proposed to enlarge the parish church of Kilbroney, at Ros-trevor, by the trustees of the estates of the late Earl of Kilmora.

A new Roman Catholic church is to be erected at Broadford, Co. Kildare, according to plans by J. S. Butler, architect.

The Provincial Banking Company are about building a new bank house at Nenagh, Co. Tipperary; Mr. Wm. G. Murray, architect.

Amongst the new applicants for loans under the Landed Property Improvement Act are E. H. Byrne for £600, to be expended in labourers' dwellings at Sohart, Ikerran, Tipperary; Right Hon. J. Wynne for £900, at Hazlewood, &c., Carbury, Sligo; and the Right Hon. the Earl of Longford for £1,000, at Cradinstown, &c., Farhill, Westmeath.

The Marquis of Clanricarde is about to erect a new market-house in Loughrea.

A new Court of Probate Registry Office is erecting by the Board of Public Works at Armagh, with a residence and strong rooms included; Mr. P. Kerr, contractor. Cost about £1,000.

Premises have been taken in Elenderry by the Ulster Banking Company for the purpose of opening a branch bank; besides commodious offices for business, they will comprise residence for the manager.

MEMORIALS.

The Emperor of the French has subscribed £200 to the Eglinton and Winton memorial. The whole fund now amounts to £6,000.

A handsome monument has just been erected in the Derry Cathedral to the memory of Captain John McNeil Boyd, of the Ajax, who was swept off the pier of Kingstown and drowned, while attempting to rescue the crews of some shipwrecked vessels during the hurricane on the 9th Feb., 1861. Mr. Thomas Farrell, of Lower Gloucester-street, is the sculptor.

A monument to Alexander Wilson, the Scottish poet, will shortly be erected. The site proposed is the open space in front of the County Buildings, Paisley.

On the 4th ult., a public meeting, called by the Mayor of Belfast, Charles Lanyon, Esq., was held in the Town Hall, for the purpose of taking steps to raise a suitable memorial to the late Prince Consort. A local memorial was resolved upon, and a committee was nominated to receive subscriptions and make all the necessary arrangements. It is contemplated that the memorial in Belfast shall take the form of a tower or pillar of lofty proportions; and Dr. Cooke suggested that it should be erected on the most prominent position in the neighbourhood of the town—the Cave Hill.

PROGRESS OF TELEGRAPHY.

The works in the southern provinces for the extension of the telegraphic system are in rapid progress. The telegraphic cable which will unite the Pembrokehire with the Wexford coasts was to have been laid on or about the 7th inst., and very shortly the opening of the line will place Ireland in communication with the rest of the telegraphic world. The first section of the works, which was opened on the 10th of March, includes the stations of Wexford, Duncannon, Passage, Waterford, and Tramore, thus placing them in direct communication with 600 stations in the United Kingdom.

The Atlantic submarine telegraph project is again revived—President Lincoln's Government are prepared to ask Congress to guarantee two per cent. upon a capital of six or seven hundred thousand pounds, for twenty or twenty-five years, if England will do the same.

RAILWAY MEMORANDA.

The grand jury of the county of Louth have, through their parliamentary agents, Messrs. Byrne and Lambert, of Dublin, presented a petition to the House of Lords, praying to be heard by counsel against the bill now pending, whereby the Dundalk and Enniskillen Railway company seek power to construct two lines of railway to the quays at Dundalk. It is said that five other petitions with the same object have also been presented within the last few days.

The Railway Passengers Assurance Company have declared a dividend at the rate of 4 per cent.

The Waterford and Limerick Railway Company at meeting on 27th ult., declared a dividend in following manner:—Of five per cent. per annum, on the five per cent. preferential share capital; of six per cent. per annum on the six per cent. preferential share capital; of four-and-a-half per cent. per annum on the consolidated preference stock; of two per cent. per annum on the ordinary share capital. The government engineer went over the line from Birdhill to Killaloe recently, and tested it. We (*Clare Journal*) believe from what we have heard that he has not made a favourable report, and that certain requirements are demanded before the line can be opened for passengers and traffic.

We (*Wexford Independent*) have much pleasure in stating that the Bagnalstown and Wexford Railway Company have served notice on government that they will open their line from Burris to Ballywilliam, in this county.

We (*Cork Herald*) understand that the usual notices, requiring a government inspection of the Cork and Queenstown Railway previous to its being opened for public traffic, have been transmitted to the Board of Trade.

The engineer (Sir John MacNeill) to the Dublin and Meath Railway reports that the Messrs. Moore, contractors, are vigorously pushing forward the works to completion—having upwards of 1,100 men and 150 horses daily employed. There are 18 miles of permanent way laid down, viz., from Navan to Blackball, and a further distance of three miles will be ready for the rails in the course of a few weeks. There are now only three bridges to be

commenced—viz., Royal Canal Bridge, Barberstown Public Road Bridge, and one 12ft. under bridge, all the others being finished or very nearly so. The drawings for the different stations along the line are perfected and the Kilnessan station platforms and road approaches are already commenced. The Chairman (Sir Joseph Paxton) said he had the day previous closely examined the line of works which he considered, were being executed in a most substantial style, and the ground through which the line ran was of such a character as to prevent the slipping of the embankments. There was a great deal to be done yet on the line in the way of ballasting, but by the energy of their engineer and contractors, there was no reason to apprehend that it will not be delivered up to them in the promised time.

Mr. Leader, M.P., has submitted a resolution to the county Cork grand jury, in favour of a baronial guarantee on the £100,000 or half the capital requisite for the construction of the West Cork railway. Resolution adopted with some modification.

The return moved for last session shows that in the year 1860, the United Kingdom had 10,433 miles of permanent way. Of this England had 5,783 miles open; Scotland, 1,486; and Ireland, 1,864. The total gross receipts were £27,784,000. England received £23,455,000; Scotland, £2,925,000; and Ireland, £1,368,000. The working expenditure, in the aggregate, was £13,187,000—thus divided, the "maintenance of way" was 18½ per cent. of the total expense, or £2,437,000. "The locomotive power" was 29 per cent., or £3,801,000. The proportion per cent. of expenditure on the gross receipts in England was 48; in Scotland, 44; and in Ireland, 45;—or, changing the mode of expression, we can say that England secures £52 Scotland £56, and Ireland £55, of every £100 received. There appear to have been in the whole kingdom 5,801 locomotives, 15,076 passenger carriages of every description, and 180,574 waggons of all sorts, used for the conveyance of live stock, minerals, or general merchandise.

INDUSTRIAL.

No fewer than 25,000 Coventry weavers are out of employment.

The stock of cotton held at Liverpool at the close of last month amounted to only about 53 per cent. of the quantity on hand at the corresponding period of 1861. The quantity of American was reduced to 170,880 bales as compared with 693,540 bales last year; and while 387,000 bales were last year at this date on their way to Liverpool, this year there are only a few chance waifs and strays en route. To the end of February only 125,321 bales have come to hand this year from all sources, against 648,399 bales in January and February, 1861. Facts such as these demonstrate the severity and gravity of the present crisis.

The Royal Dublin Society's Annual Exhibition of sheep, swine, poultry, horses, machines, implements of husbandry, portable manures, seeds, &c., will be held on Tuesday, the 22nd of April, and three following days. The prizes, which are open to general competition, will include—the *Farmers' Gazette* challenge cup, value one hundred and fifty-five sovereigns; the Irish Railway challenge cup, value one hundred and twenty-five sovereigns, contributed by several of the Irish Railway Companies; the Ganly challenge cup, value fifty sovereigns, contributed by Mr. James Ganly, auctioneer, Usher's-quay; twelve gold medals, besides money prizes; one hundred and seventy silver medals, and several honorary certificates, &c.

It has been calculated that England alone constantly employs 70,000 gardeners; this number is much increased by adding to the estimate the amateurs "of high and low degree," nor do we overstep prudent bounds in stating in round figures that 100,000 professional amateur gardeners are daily employed in the various operations connected with floriculture and horticulture.

NEW PATENTS.

P. EFFERTZ—for "improvement in machinery or apparatus for making bricks, tiles, drain pipes," &c.

J. KEDDERN—for "improved apparatus for raising the temperature of air in churches, conservatories, houses, and other buildings."

T. G. MESSENGER—for "improvements in glazing horticultural buildings, roofs of railway stations," &c.

T. HOLLAND—for "improved apparatus by which engine or train is made to give alarm or signal at any required place, or arriving at, or passing near any given point."

T. P. DORMAY and J. JOHNSON—for "improvements in construction of boats for sailing or rowing."

Lambert and Byrne, solicitors, 4, Lower Ormond-quay, patent agents for the foregoing.

GENERAL NEWS.

The trustees for subscriptions to the subscribers of the late Hartley Colliery accident deceased, announce that they have received sufficient to alleviate their distress, and we believe it is proposed to appropriate the surplus to funds for similar casualties.

The entire arrivals of precious metals during past week amounted to £1,158,000.

It is stated that among the promised contributions from Australia to the coming International Exhibition is an obelisk, which is intended to represent the total amount of gold exported from that country to England during the past ten years. It will be 10 feet square at the base, and 42 feet high, being an equivalent in solid gold to 800 tons, or one hundred and four millions of pounds sterling, the amount received from Australia since 1851.

The Bill for Embanking the North Side of the Thames, and making new streets, one from Blackfriars Bridge and the Mansion House, has been brought into Parliament by Mr. Cowper.

Recent accounts from Pennsylvania state that the oil-springs in that State are now yielding considerably more than one million of barrels of crude oil per annum, and that it is already rivaling the coal trade in importance.

Since the beginning of November, 1858, the Irish Landed Estates Court has made no less than 1,161 orders for sale, and the numbers have been increasing year by year. Ninety-two of these orders were for the sale of unencumbered estates, the owners applying for a sale under the auspices of the Court. The rest were of encumbered estates, 654 of the orders upon the petition of encumbrancers, and 416 upon the petition of the owners. Only 19 declarations of title have been made; one more was applied for, but refused.

Amongst the items submitted to committee of supply in Imperial Parliament on the Army estimates is one of £2,500 for the defence of Belfast.

The government will not take any steps towards remedying the condition of the rivers Shannon and Swabe, the recent overflowing of whose banks caused such loss of property to the inhabitants of the neighbourhood.

A discussion took place in the Corporation of the 3rd instant, relative to tenders for pipes for the city sewerage, Committee No. 3 having recommended the acceptance of Mr. Joseph Kelly's tender. The Town Clerk read the schedule of estimate prices by both contractors. In some cases Mr. Lavender's prices were under Mr. Kelly's; in others, over. Mr. Devitt said the principal point to be considered was the price of the 9-inch pipe. Mr. Kelly's price for that was lower than Mr. Lavender's. During the last three years the council purchased 27,768 feet of pipes, of which not less than 16,820 were 9-inch. The decision was ultimately in favour of Mr. Kelly.

The directors of the Dublin and Kingstown Steam Company have ordered from the Clyde a first-class steamer to be built and put on the station early in summer. Having an average speed of sixteen miles she will be able to make the passage from Carlisle-bridge in thirty minutes. Dimensions—150 feet long, 20 feet beam, 8 feet hold; steering both ends, with saloons on deck, and a promenade deck over 120 feet long; 80-horse power, drawing, with 600 passengers, 8½ feet. The hold can be turned into extra cabins, if such will be required.

A deputation of the Royal Dublin Society will (says the *Athenaeum* of 8th instant) wait on Lord Granville, on Thursday next, at the Science and Art Department, South Kensington, to ask for some assistance in completing the Museums and Art-collections of the Society. We believe the deputation will not lay a very heavy estimate before the Lord President. They will ask for £3,000 towards the National Gallery, £4,750 for the completion of the National History Museum, £2,000 to be divided between the Library and the Museum of Botany, and £500 for the publication of a Catalogue of Minerals. In addition to this they will ask for an increase of about £600 on the annual grant, partly for the maintenance of the School of Art, and partly for expenses attending the opening of the Botanic Gardens on Sunday.

The number of performers, vocal and instrumental, for the inauguration music at the opening of the Exhibition, will, it is said, be 1,300.

The magnificent album, representing in all its details the summer palace of the Emperor of the Celestial Empire, has just been deposited, by order of the Emperor Napoleon, in the library of the Palace of Compeigne. This album, engraved in China by the missionaries, consists of twenty engravings, placed upon pasteboard, with silk margins. At the taking of the summer palace it fell to the lot of General de Montauban, who presented it to the Emperor. Another souvenir of the Chinese expedition has been placed in the Musée des Souverains. This is the sceptre or staff of command of the Emperor of China. This staff is in green jade, and at either end is sculptured in *relievo* the sacred lotus flower.

The Metropolitan and Provincial Bank will commence business on the 31st inst., with a paid subscribed capital of £700,000, and 400 shareholders.

The *Montreal Advertiser* says that the heavy gates, to close the tube of Victoria Bridge, are in course of preparation; and a strong picket-guard will be stationed at each entrance. When the gates are hung, they will be opened to allow the passage of trains, and immediately closed, and the doors of all passenger-cars will be locked, to prevent any person leaving them while passing through the tube. These precautions are taken to prevent the threatened blowing up of the tube.

The Corporation of Dublin has presented a petition, praying to be heard against the Rathgar and Sandymount Improvement Bill.

The production of oil from the springs in Canada and the United States continues on a scale far greater than the means of transport. At present the refining trade, as regards this product, seems in a state of only partial organisation, but the difficulties and cost of conveyance delay its development. Every fresh account, however, seems to anticipate that the supply is virtually illimitable, and that the result will be the growth of a new business, which for rapidity and extent will be such as has rarely been paralleled.

SCIENCE, LITERATURE, AND ART.

The Academy of Fine Arts, at Manchester, will open their exhibition of modern pictures (oil and water), sculpture, and architecture at the royal Manchester institution, as soon as practicable after the closing of the academy. Latest day for receiving contributions, 16th August.

At same institution it is announced that "In order to afford a more especial recognition of the claims of water-colour art than is possible at the general annual exhibition in the autumn, the council have again determined to open an exhibition of water-colour drawings in April next, and the opportunity of exhibiting will not be confined to artists and private individuals, but will be extended to the trade generally." [We are at a loss to know what the *trade* means.—Ed.]

For the coming Handel Festival at Crystal Palace, Sydenham, the entire purchases of reserved seat tickets during the first four days are estimated at £9,000; considerably exceeding previous festivals in point of *date*, as may be seen from following figures, viz.—for the festival of 1857, it was the 19th of May ere this amount was reached; for the festival of 1859, it was only reached on the last day of March, and as at the latter festival over £1,450 of this amount was for half-guinea tickets (the issue of which has not yet commenced), it is obvious that the coming festival has already met with a financial success far beyond that of either of its precursors. [So far so good.—Ed.]

The roofing over the orchestra at the Crystal Palace is proceeding rapidly: competent judges predict that when this enormous cover is placed over the performers, the effect of the music—particularly in the more distant seats—will be enhanced threefold; while the span of this great arch, 216 feet wide (or double the diameter of the dome of St. Paul's Cathedral), will have the most imposing effect.

The Earls of Derby and Clarendon, Sir Charles Eastlake, R.A., and the Lord Mayor of London form the committee appointed by her Majesty for selecting the design for memorial to late Prince Consort; the obelisk form being preferred.

The South Kensington Museum Committee have added to their previous establishment a new gallery for the display of various objects of art from public and private collections, in anticipation of the increased influx of visitors during the approaching season.

Mr. MacIose's picture of "The Meeting of Wellington and Blucher after Waterloo," and intended for the royal gallery, is near completion for fixing at the Houses of Parliament. The "Death of Nelson at Trafalgar," by same artist, will occupy corresponding compartment.

Some of the artists engaged at the Houses of Parliament have represented to the authorities the expediency of modifying the glare of colour cast upon their pictures in the national building by the extravagant quantity of stained glass in the windows by which they are lighted.

A letter from Florence states that the magnificent David of Michael Angelo (which has stood on one side of the entrance of the "Palazzo della Signoria," in the "Piazzo del Popolo," Florence, since the year 1504) has for some time past shown signs of becoming deteriorated by the action of the weather on its surface. It is proposed to remove it to a less exposed position.

It is thought that an art exhibition project in Bristol will shortly be matured.

A second part of "The Liber Hymnorum"—the Book of Ancient Irish Hymns—edited by the Rev. Dr. Todd, will be published shortly by the Irish Archaeological and Celtic Society.

One of the most remarkable pictures of the season is by M. Lozer, who painted the "Wounded of Magenta," an unpleasant subject, and he has now chosen, for what we laud the poet Gilbert, "Found Dead by Hunger by a Rag Picker of Paris."

Mdlle. Wilhemina, the elder of the two sisters Neruda, has been decorated by the King of Sweden with a title of honour, in recognition of her great merit as a performer on the violin.

Experiments have been made on board some of the gunboats, and it has been ascertained that in using the ordinary pitch pine which abounds in Canada, steam can be generated in the boiler in about half the time necessary when coal alone is used.

The professorship of modern languages in the Queen's College, Belfast, has been vacant for some time, but is to be filled up on this day.

Amongst the recent archæological discoveries at Rome there is none of greater interest than that of the Primitive Church of St. Clement on the Esquiline.

The Royal Hibernian Academy's next exhibition is announced to open on the 5th of May next.

MUSICAL AND DRAMATIC.

Mr. Boucicault has changed altogether the character of his programme at the New Ad-Elphi, and placed on the boards a new drama, in five acts, under the title of "The Life of an Actress." Of this the London journals speak most favourably.

Mr. Fechter and Mr. Ryder, at the Princess, have exchanged parts in the play of *Othello*; the former now enacting Iago, the latter, "the Moor." Mr. Fechter is said to excel in his present role, even his former triumph, and Mr. Ryder's abilities is also most warmly commended, although stepping in the shoes of a predecessor who had made a decided hit.

The *Athenæum* notes that "after something like starvation in concert-music during the dark winter months, there comes a positive storm of entertainments, and many of these 'serials.'"

THE DUBLIN MADRIGAL SOCIETY.—There was a most pleasing concert of this society on the evening of the 3rd instant, and moreover, a crowded assemblage to enjoy it. The artistes engaged are local, and the affair passed off with an *éclat* which does honour to the musical resources of our city. Miss Julia Cruise sang sweetly and correctly as usual, and Mr. Topham's rendering of a new ballad, "The dear Old Flag of England"—composed by Mr. Elrington (Ed. of *Saunders*, and a poet of celebrity)—elicited the highest praise. Mrs. Callinan and Messrs. R. Smith and O'Rourke performed their respective tasks in a highly efficient manner. Mr. Talbot (Hon. Sec.) was heard to much advantage in the concerted pieces. We trust that this gentleman's exertions to maintain the society will be crowned with success and meet grateful recognition.

ALBERT THE GOOD.

MR. TENNYSON has dedicated his new edition of the "Idylls of the King" to the memory of Albert the Good, in the following lines:—

DEDICATION.

These to His Memory—since he held them dear,
Perchance as finding there unconsciously
Some image of himself—I dedicate,
I dedicate, I consecrate with tears—
These Idylls.

And indeed He seems to me
Scarce other than my own ideal knight,
"Who revered his conscience as his king;
Whose glory was, redressing human wrong;
Who spake no slander, no, nor listen'd to it;
Who loved one only and who claved to her—"
Her—over all whose realms to their last isle,
Commingled with the gloom of imminent war,
The shadow of His loss moved like eclipse,
Darkening the world. We have lost him: he is gone:
We know him now: all narrow jealousies
Are silent; and we see him as he moved,
How modest, kindly, all-accomplished, wise,
With what sublime repression of himself,
And in what limits, and how tenderly;
Not swaying to this faction or to that;
Not making his high place the lawless perch
Of wing'd ambitions, nor a vantage-ground
For pleasure; but thro' all this tract of years
Wearing the white flower of a blameless life,
Before a thousand peering littlenesses,
In that fierce light which beats upon a throne,
And blackens every blot: for where is he,
Who dares foreshadow for an only son
A lovelier life, a more unstain'd, than his?
Or how should England dreaming of his sons
Hope more for these than some inheritance
Of such a life, a heart, a mind, as thine,
Thus noble Father of her Kings to be,
Laborious for her people and her poor—
Voice in the rich dawn of an ampler day—
Far-sighted summoner of War and Waste
To fruitful strifes and rivalries of peace—
Sweet nature gilded by the gracious gleam
Of letters, dear to Science, dear to Art,
Dear to thy land and ours, a Prince indeed,
Beyond all titles, and a household name,
Hereafter, thro' all times, Albert the Good.
Break not, O woman's-heart, but still endure;
Break not, for thou art Royal, but endure,
Remembering all the beauty of that star
Which shone so close beside Thee, that ye made
One light together, but has passed and left
The Crown a lonely splendour.

May all love,
His love, unseen but felt, o'ershadow Thee,
The love of all Thy sons encompass Thee,
The love of all Thy daughters cherish Thee,
The love of all Thy people comfort Thee,
Till God's love set Thee at his side again!

A DISTINCTION WITHOUT A DIFFERENCE.—The Royal Academy refuses to acknowledge the appointment of Mr. Bonomi to the curatorship of the Soane Museum, yet they have appointed *pro tem.* in his stead the self same individual.

RE-CASTING OF THE BELL OF THE LISBURN CATHEDRAL.—The older material of which this now splendid bell is composed has about it a host of recollections, many of these highly interesting. About the middle of the first half of the seventeenth century, Lord Conway erected a church called Christ's Church, on the site now occupied by the cathedral, and in the cupola of the building there were placed four bells of peculiar form, and which at that day had no equals in any part of Ulster. When the town was burned in 1707, the church, which had been erected into a cathedral upwards of forty years before, suffered in the general conflagration, not a single remnant of the building having been saved. Some time afterwards there was found amid the ruins the debris of the four bells, which having been collected and preserved, was afterwards sent to London by the Earl of Hertford, and with additional material a new bell was formed, having on it the following inscription:—"Francis Earl of Hertford had this bell re-cast in London in 1752." By some accident—caused, it was said, by the awkwardness of the sexton of that day—a slight fracture was made on the side of the bell about the commencement of the present century. Scarcely any bad effect, however, was produced on the tone, which has been admitted to have been the finest possessed by any in Ulster. From that date, and until within some months past, the bell of the Lisburn Cathedral retained its ancient celebrity—not one of the more modern construction having been found to exceed it in depth of richness of tone. Nearly a year ago, the original damage which the instrument had received more than half-a-century previous so spread up the side of it that it became necessary to have the whole affair taken down for re-casting. The founding of the new bell was entrusted to Mr. Thomas Hodges, of Middle Abbey-Street, Dublin, a gentleman who has gained several prizes for his ability in that department of artistic science. On Tuesday evening last, the new bell arrived by the last train from the Irish metropolis, and yesterday it was safely placed in the position so long held by its predecessor. The Very Rev. the Dean of Ross, Rector of Lisburn, has been indefatigable in his exertions to have the new bell at least equal to the former one, and, to the credit of its founder, it appears that no disappointment will be felt on that subject. Lord Hertford, the lord of the soil, has paid the cost of the re-casting and other outlay connected with the erection.—*Belfast Weekly News.*

KANTURK UNION.—"The workhouse accommodation here is fixed by sealed order for 1,111 persons. On the 1st of February there were only 579 paupers therein, of whom 199 were in hospital, and 98 children under five years of age. The numbers are now reduced to 553. The union is very large, contains 104,000 acres, is poor, remote, for a great mountain, with a small resident proprietary, and contains several villages in addition to the chief town of Kanturk. . . . In 1850 and 1851 there were about 5,000 in the workhouse and its several auxiliaries, and 24,000 receiving outdoor relief."

LONDON INTERNATIONAL EXHIBITION.—There is a well-known ship-owner in America about sending over to Europe a first-class coasting steamer to this Exhibition. She is 400 feet long, and attains a speed of 22 miles per hour, with ample accommodation for 2,000 passengers. It is stated that she will run between Holyhead and Kingstown, and her owner will send another vessel if found necessary. The London and North Western Railway will commence a mid-day service with a powerful steamer, between Dublin and Holyhead, at an early date.

COPYRIGHT IN WORKS OF ART.—The bill introduced into the House of Commons by Mr. Massey, the Attorney-General, and Solicitor-General, for amending the law relating to copyright in works of the fine arts, and for repressing the commission of fraud in the production and sale of such works, has been printed. It provides that the copyright is not to prevent the representation of the same subjects in other works. Assignments, licenses, &c., are to be in writing. Penalties are inflicted on infringement of copyright, and on fraudulent productions and sales. The importation of pirated works is prohibited.

POPULATION, REVENUE, &c.—A parliamentary return, recently issued, states that the aggregate amount of revenue derived from taxation in the three years ending December 3, 1860, in the United Kingdom, was £191,827,391. In 1858, it was £61,591,424; in 1859, £63,249,023; in 1860, £66,986,944. Proportionately to the mean of population and revenue from taxation on April 8, 1861, England would have 485 representatives, instead of 500, as at present; Scotland 74, instead of 53; and Ireland, 99, instead of 105.

EMPLOYMENT IN MANCHESTER MILLS.—Of 215 factories, &c., in Manchester, 76 are running full time, with the full complement of hands; 58 are running full time, with only a portion of the hands employed; 70 are on short time; and 11 are stopped altogether. Of the total number of 47,481 operatives who are usually employed, 26,643 are in full work, 14,806 on short time, and 6,532 altogether unemployed.

FOREIGN ENCOURAGEMENT TO OPERATIVES TO VISIT FORTHCOMING EXHIBITION.—We learn that the Municipality of Paris have placed, for this purpose, 40,000 francs in the hands of a committee of the operatives; the latter, in case of necessity, call upon their brother-workmen to add to this fund by subscriptions, in order that all branches of the mechanical arts may be enabled to visit London this year. [Why do not our operatives take a hint from this, and from our previous remarks on this subject?—Ed.]

TIMBER.—The sale of timber at Messrs. Martin and Son's stores, North-wall, on Thursday, the 20th ult., was the largest we have had for several months; the attendance was numerous, and the bidding showed a decided improvement in tone, both as regards price and demand, compared with several late sales. Large purchases were made chiefly on behalf of country buyers. We believe, however, many of the lots were placed considerably under value.—*Freeman.*

TENDERS

For additions and alterations to Seakanore House, near Omagh; Messrs. Boyd and Batt, architects, Belfast and Londonderry; quantities taken out by Mr. Fetherston, Londonderry:—

Mullin, Omagh	..	..	£2,500	0	0
Ferguson, Londonderry	..	..	2,332	0	0
Stewart, Belfast	..	..	2,181	0	0
M'Gaughey, Omagh	..	..	2,100	0	0
M'Clelland, Londonderry (accepted)	..	..	2,074	10	5

For alterations in Mr. Simonton's house, Grafton-street; Mr. Sloane, architect:—

Clarke	..	..	£380
Drysdale	..	..	248
Grant and Lennon (accepted)	..	..	825
Smith	..	..	320

[ADVERTISEMENT.]

TO THE EDITOR OF THE DUBLIN BUILDER.

16, Bride-street, Dublin, March 8, 1862.

SIR—In your last issue we were pleased to read your notice of Messrs. Schofield's establishment, at Oldham, and beg to be permitted to add, that we have been favoured with orders from some of the most eminent builders and contractors for trimmings for various works in progress in the city and suburbs; and we have been assured that the mouldings, &c., are so well finished by the machines that they do not require any sand-paper to complete them—in fact, that they cannot be excelled.—Yours, &c., RD. BOOTH & Co.

NOTICE.

Such of our Advertising friends as have received accounts from our office, and also Subscribers for current year, will kindly remit the amounts soon as convenient.

Letters relating to subscriptions and agents to be addressed to, and Post-office Orders, &c., to be made in favor of, the Publisher, Mr. PETER ROE, 42, Mabbot-st., Dublin, who will give the proper acknowledgment.

FOXROCK BUILDING ESTATE,

NEAR STILLORGAN AND KINGSTOWN, CO. DUBLIN.

FOR DETACHED VILLAS this Property is chiefly intended. The RENT for PLOTS is exceedingly moderate; BEAUTIFUL SITES, with Sea and Mountain Views, and within a few minutes' walk of the Foxrock Railway Station, can be had at £10 the first Acre, and £7 for each additional Acre; BRICKS, LIME, SAND, and STONE, on the Property, are sold at reduced Rates to Tenants—the saving in Carriage thereby is an important additional advantage; the RAILWAY SUBSCRIPTION to Dublin is ONLY £7 a year second class, and £9 first; the FOXROCK OMNIBUS and Stage Cars ply regularly to Kingstown, Kill of the Grange, Cabinteely, Glenageary, &c.; the FOXROCK MART supplies Drapery, Groceries, Provisions, and Meat, all of best description, at and UNDER LOWEST Dublin prices; a NEW CHURCH is to be built on the Property this year; a HOTEL is being erected near the new Railway Station; BUILDING LEASES FOR 900 YEARS are granted; in fine, nothing is wanted to promote progress, and secure to the Capitalist permanent and remunerative returns for Investment.

N.B.—Upwards of THIRTY THOUSAND POUNDS have been expended on this Property in Buildings, Roads, and other improvements, within the last Two Years. The Houses built are all Detached, and are from £500 each to £3,000 in value. Applications are daily increasing for Houses at Foxrock, of all sizes. Those finished are all most respectably occupied. Apply to

W. W. BENTLEY, FOXROCK; or BENTLEY & SON, 110, GRAFTON-STREET.

February 12, 1862.

The Dublin Builder.

VOL. IV.—No. 55.

ARCHITECTS' RIGHTS AND RESPONSIBILITIES.

THE anomalous condition of the architectural profession, both as regards the equitable scale of remuneration to its members for their services, and the precise amount of responsibility incurred towards their clients, has been long a matter of notoriety; but recently—as may be seen by reference to our special notes at Derry assizes elsewhere in this number—it has been very peculiarly illustrated, and a few comments thereon, as regards the principles enunciated—and without, for obvious reasons, touching the individual merits of the case—will be received with interest. A gentleman of capital desires to invest in the improvement of his property, by laying out a new square, constructing approaches thereto, and subdividing it into lots for building purposes. He procures a plan from an architect, who—after stating terms—makes a survey, takes levels, prepares a map and general design, or block plan, which is approved, and the works are commenced. To ensure harmony of the whole, certain classes of houses are determined upon for the respective sides, and according to the architect's plan for same—at least as regards elevation—the lessees of the lots will be bound to construct. The ground being ready staked out, and the square and roads formed under architect's superintendence—who has spent *seventeen weeks* in that service with unremitting attention and without a contractor—and the proprietor conceives the idea of assuming the initiative, and commences four houses of a hand-some terrace, for which the architect had previously prepared a general design, and furnishes working drawings, and—as alleged by latter—a complete specification. These houses had been proceeded with to a certain stage when a mistake was discovered—to whose negligence to be attributed, our readers must deduce from the evidence, which is exceedingly conflicting—but certain it is that the range was retired some 10 feet behind the line defined on the block plan, and that more or less the *rears* are curtailed. However, the works proceeded with the proprietor's knowledge (at least) of the mistake, and to compensate therefor some modification in width of stable lane is proposed, and the proprietor hopes to maintain, on certain conditions, his right to a further 6 feet at the mearing or “quick,” he building a substantial boundary wall. Assuming all this to have been realized, the state of things would have changed, and the detriment lessened; but it is not so, for the proprietor dies, and his affairs pass into the hands of executors, whose first act is to supersede the architect, when about £500 had been expended. Naturally indignant at this, the latter furnishes his account; defendant pleads both excessive charges and non-liability in consequence of alleged unskillfulness of plaintiff, and in his turn, becomes plaintiff in a cross-action for damages for the *mistake*. The questions to be tried are, what are an architect's proper fees? and what his responsibility for any alleged detriment that may ensue to his client's interests while acting professionally on his behalf? also what is the extent of damage? An eminent Belfast practitioner deposes to the correctness of the plaintiff's principles of charging an extra per centage over a certain amount, for the extra trouble incurred by acting without a contractor, and under, say £500, ignores the per-centage system altogether as unremunerative, and estimates by “time and labour;” thinks if the proprietor insisted on retaining, against the architect's express desire, an incompetent foreman, who makes a serious mistake, the latter should not be responsible; admits that such mistake has caused some detriment to the *rears*, but contributes improvement to the front. On part of defendant a Dublin architect is examined, and conceives that it is *infra dig* for an architect to lay out grounds, superintend construction of roads, &c., and that no matter what time or labour he bestowed on same, he is entitled only to so much for his design, and 2½ per cent. on the outlay; further, that he would consider himself, if similarly placed, responsible for the mistake, which, according to his valuation, is a detriment of £7 per annum per house for the whole range of sixteen, which, at twelve years' purchase, would amount to £1,344.

Who is to solve this gordian knot? Doctors it seems are not singular in their right to differ, but certainly “the opinions” of architects are painfully contradictory on the most vital points, and if the other professional witnesses engaged in these cases were examined, no doubt many new views would have been elicited from them likewise. The present is a fitting opportunity for us again to urge the necessity of a revival of the dormant institute of architects—a necessity which every one admits, and yet so abundant are the misgivings from some unexplained causes, that none can succeed in setting the machinery effectually at work. An attempt to organize the members into a representative body is even at present being made, but however much we may wish a contrary result, we fear it will prove as abortive as its predecessors. Should a gleam of hope manifest itself in that regard either now or hereafter, we shall only feel too much pleasure in recording it, provided the principles be sound.

TOWNS SURVEY.—II.

GALWAY.

PRECONCEIVED impressions as to the probable extent and importance of the capital of Connaught—that seaport town to which the memorable history of the Atlantic Royal Mail Steam Navigation Company's proceedings has recently, and still does, impart much special and national (may we add, melancholy) interest—are not fully realized to a stranger on his visit to “*The City of the Tribes*.” While there is admittedly much to *admire*, there is also much to *deplore*; but we sincerely hope, that as the sun of prosperity which seems now “looming in the distance,” emerges from behind the black clouds of adversity that have for some time “lowered o'er her house,” the genius of progress will prove more propitious and bountiful in her dispensations than hitherto. Galway has many valuable natural elements in her constitution, and her children do not lack either ability or enterprise; yet withal, the reality by no means contrasts favourably with that elsewhere presented without even quitting the western province. In extent of water power she is—if not unrivalled—at least unexcelled; nevertheless, there is a palpable want of the necessary works for an efficient supply for the town, and for the effecting of a sanitary improvement which is very sadly required. Will not the Town Commissioners, whose good intentions we do not question, take some steps to remedy this?

The river Corrib, between Lough Corrib and the sea, claims special attention, on account of the works which have been executed by the Board of Works, under the superintendence of Mr. S. U. Roberts (Co. Surveyor), resulting in the recovery and improvement of flooded lands, the opening up of navigation from the sea to the Lough, and the vast increase and improvement in the mill power of Galway.

This river is kept to a uniform level throughout the year by means of a regulating weir and sluices; the former, in which there is a salmon stairs, and forming a beautiful overfall, is provided with falling boards, which keep up the supply for the mills to a regulated level in the summer months, or discharge the surplus waters of the winter floods into the rapid channel which flows through the town, receiving the tail water from the mills, and emptying itself into the sea. The main channel is spanned by 8 bridges, between the first two of which is a salmon weir of 6 fishing cribs, the property of the Messrs. Ashworth, who possess the entire right of fishing on the river. Above the regulating weir, the river branches into eastern and western mill conduits, and the navigation channel or head of the Eglinton Canal. These conduits supply 17 flour mills, 8 distilleries, a paper manufactory, brewery, marble mill, and tuck mill; the surplus water is discharged into the main channel by weirs, provided with self-acting falling boards.

The Eglinton Canal to the west of the town is about a mile in length, and connects the navigation of Lough Corrib (on which steamers ply regularly) with the sea, it is crossed by 5 swivel bridges, and two locks bring up the difference of level.

It is a matter of surprise that such an inexhaustible supply of unemployed water power does not invite speculative manufacturers to establish a trade, which the resources of the Galway merchants would seem to be unequal to. The town itself, which comprises an area of about 630 acres, and is peopled by nearly 17,000 inhabitants, affords illustration of much “room for improvement” in the architectural character of its commercial and domestic structures, the street paving and scavenging operations, &c.

Eyre-square—of which an extensive hotel, built by the Midland Great Western Railway Company, according to designs by their then architect, Mr. J. S. Mulvaney, occupies one side—is a noteworthy feature, imparting by the green sward of its centre, which is decorated with Sebastopol trophies, a pleasing *rus in urbe* appearance. The Queen's College, erected simultaneously with these of Belfast and Cork—very inferior, however, to either in design—is most favourably situated, but cannot be classed amongst the successful productions of its architect. The other public buildings comprise new county club-house, the county and town court-houses—one of which requires completely to be remodelled—national model schools, charter schools, workhouse, infirmary, prison—about to be altered under Mr. Roberts, C.E., directions—Established Church structure, Augustinian ditto—recently built; Mr. M. B. Moran, architect—some meeting houses, &c. Passing towards Salthill, a delightful outlet, where the broad Atlantic waters gambol unrestrained, we express a hope that at no distant period a cleaner and more spacious approach will be obtained, but halt to note a couple of progressive indications on the route. A Jesuit College, with frontage of 80 feet by 80 feet depth, is being erected. The building is unpretentious, externally displaying rubble walling of Augligham marble with limestone dressings, projecting eave course, and square headed windows, with chamfered jambs and heads; and internally the arrangements comprise on ground floor a spacious schoolroom, with reception and cap room; a temporary chapel, a class-room, and other apartments, occupying the first floor; dormitories chiefly constituting the second. Plans have been prepared for a permanent chapel in the Gothic style (and in connection), of Latin cross form, and 103 by 35 feet

in the clear, with porches and vestry. An arcade will separate nave from aisles, and great arches be introduced at chancel and transepts, the whole to be covered in by a high pitched open timber roof. The internal mouldings will be chiefly of Caen cement; expenditure about £3,500. For this and the college above described Mr. Roberts, C.E., is the architect, and Mr. John Semple, the builder. Close by is a charming little church recently erected by Messrs. Beardwood and Son for the congregationalists, according to designs by Mr. Raffles Brown, architect. As the expenditure was only about £1,600, it must be inferred that the structure is not an important one in magnitude, but it is *un petit morceau* both as regards outline, detail, and effective composition of material. The plan is simple oblong nave—a portion being screened off with pannelled and traceried wainscot for vestry and school purposes—roofed in with stained and varnished open timber, the trussels springing from stone corbels (with unfinished caps), and sheeted between. All the woodwork and fittings throughout are in harmonious keeping, and most tastefully designed. Light is obtained from flanks through coupled windows, and from east and west ends through traceried opens with gable lights above. The stained glass by Barff is effective, the passages are tiled in Minton's wares, and gas in appropriate fittings is available when required. Pursuing our journey along the sea road, we next come to a school-house for Irish Church Missions Society in progress at Tailor's-hill-road, and to cost some £1,100. The style is Gothic, the rubble of walls being in alternate courses of granite and local marble, the windows having pointed arches, the roof high pitched, and one portion of the building two storeys high for teacher's residence, committee-room, &c. Mr. Semple is building here also under Mr. Roberts' directions. Further on, with same assistance, Mr. T. M. Persse and Captain O'Hara have recently erected costly mansions at the respective expenditures of £4,000 and £8,500. The former is a granite building with limestone dressings, and named "Mount Vernon;" the latter, "Senaboy." Mr. Roberts himself has been dabbling in the "bricks and mortar," and provided for his own purposes a handsome dwelling at Rockbarton—in the Italian style, and known as "Barfield"—which for tasteful design *at least* will not suffer by comparison with the domiciles of his clients. Looking for further subjects to note, we see not far from hence a nondescript heap, of pitiable handicraft, and more pitiable design, intended for what, we care not to enquire much less to record, and retrace our steps towards town. There are very many nests of filth in those portions of the town where poverty holds dominion; narrow passages and courts whence an intolerable stench is emitted are frequent, and even in the better circumstanced localities the whitewash brush is but too sparingly applied. By the general particulars communicated in the foregoing, it will be seen that the good people of Galway have been doing *something*, and that they are about doing *more*, but not as much as we would *wish* or as they *should*; however, it is not our intention to dispose of their proceedings so summarily, as for the present we are necessarily compelled to do, and we promise to keep our eye upon their movements in future. The well known name of "Father Daly" has been so intimately associated with the modern history of Galway, that it would be ungracious were we to conclude this notice without according to his zealous exertions in her behalf, and his unquestionable ability that merit to which—apart from any consideration of certain recent circumstances—he is on all hands admitted to be pre-eminently entitled.

OUR NOTICE OF BALLINASLOE.

A RESPECTED contemporary, the local *Star*, after favouring by quotation of our remarks in last number relative to this town, says "it agrees with our suggestion respecting the want of an early train to Galway, but that it will be seen in other respects our observations are not strictly correct."

The alleged errors would seem mainly to consist in our having associated Mr. Kempster's name as architect to the *three* new detached houses on road leading to the town, whereas he only furnished plans for *one*. The other two—almost *fac similes* outwardly—having been built by Mr. W. Maxwell, agricultural engineer and architect (the designer and superintendent of the vast works at Pollak's monster steading, fully described in previous numbers), who is also otherwise engaged in the locality.

SIR R. PEEL'S BILL FOR THE REGISTRATION OF BIRTHS AND DEATHS.

THE sub-committee appointed by the general committee having for its object the establishment of a perfect system of registration of births, deaths, and marriages in Ireland, with a view to sanitary reform, report as follows on the bill recently proposed by the Irish Chief Secretary:—

I.—It is extremely desirable that a measure for the complete registration of marriages should be introduced by the Government in connexion with this Bill, and be pushed through Parliament

simultaneously or *pari passu* with it; otherwise the difficulties of marriage registration, already sufficiently serious, will be greatly increased; as also the expense to the country.

II.—The appointment of the constabulary as the sole registrars is highly objectionable, for these among many other reasons—1st. The Registrar-General cannot exercise over them *practically* that complete control which it is necessary the head of every public department should exercise over his subordinates. 2nd. It unnecessarily limits the area of selection, and by assuming that every police-inspector and constable must be *de facto* competent for the discharge of duties so very different from his ordinary official ones, leads to the inevitable result that in very many instances constabulary appointments must be based upon a sort of compromise between the Registrar-General and the Inspector-General of Constabulary, by which not the best man for either service may be selected, but the one who can act both as a registrar and as policeman however indifferently. 3rd. Police constables have been found most efficient in the collection of ordinary statistics, such as census returns, which every householder was *prima facie* supposed to have knowledge of, and was bound to furnish for the public information, but in the cases of births and deaths there can be no such *prima facie* supposition or obligation imposed. The constable must proceed upon special information which he is seemingly invited, if not compelled, to procure, as he would information relative to offences against the criminal laws of the country. 4th. The peasantry would find it very difficult to understand that information given to the constabulary was not intended for constabulary purposes, and when in each case something savouring of detectiveism should be necessarily resorted to, the whole system would become highly unpopular and therefore inefficient. But while submitting these, which appear to us serious objections to the employment of the constabulary as the sole registrars, we feel bound to observe that objections of perhaps equal force might be urged against the selection, exclusively, of any other particular class, and therefore we would suggest that no particular class or set of public officers be selected, to the exclusion of all others, for the duty, but that the Registrar-General, acting under the authority of the Lord Lieutenant, be empowered to select and appoint those who may appear to him or to a board of Examiners acting under him, as the most competent and suitable persons as superintendent and district-registrars to aid him in carrying out the provisions of the Act; (these general principles being adopted for his guidance)—1st. The existing marriage-registrars having an equitable claim for employment or compensation under any complete system of registration, they were found competent to have a priority. 2nd. Next to them, dispensary and other medical practitioners, and all persons who have passed a scientific examination appointed for the purpose. 3rd. All other persons whatsoever whom the registrar-general may consider fit.

III.—Relative to the reports and abstracts to be furnished by the registrar-general, we think the practice should be assimilated with that of England and Scotland in every particular. Weekly returns of the state of the public health should be published for Dublin. Quarterly abstracts for all Ireland, within three months of the conclusion of the quarter; and an annual report within twelve months of the termination of the year reported upon.

IV.—The 28th clause, providing for the registration of the names given in baptism, is certain to encounter opposition from the Roman Catholic party, and we think it highly desirable for the success of the measure that religious susceptibilities should not be aroused. By the 26th clause the parents have 21 days after the birth allowed them for effecting the registration. Usually within that period the baptism of the infant takes place, and in the exceptions to this rule the parents will have ample time afforded them to choose the name they intend for their child, and have it registered accordingly. Chance or eccentric cases can be provided for by some other machinery; that of clause 38 for the correction of errors in registration would probably suffice.

V.—The 29th clause is too vague. We would recommend the duty of registration of death to be placed specifically on the head of the family or next of kin then living in the house, and failing these, upon the occupier or the person in attendance or present at the time of death.

VI.—31st clause. In the case of a person dying without a medical attendant, it might be necessary to provide a small fee for a medical practitioner to examine the case and certify the cause of death.

VII.—If the entire cost of the registration system in England and Scotland were defrayed by Parliament, we believe it would be better than the existing mode of making the burthen partly local and partly imperial; but as there seems no immediate prospect of a change in this particular in Great Britain, we, if we are to have a registration system at all, must be prepared to provide for its cost in a similar manner; and as we cannot conceive that the cost of a measure in which all classes would be beneficially interested could with any degree of propriety or regard for principle be made an item in a rate for the relief of the destitute poor, we believe, therefore, the principle of the 44th clause is sound in placing the burthen of the

local contribution on the county and borough rates. Parliament grants annually about £46,000 in aid of the registration service of Great Britain and Ireland. We would suggest to some one of our practical representatives the utility of ascertaining by a Parliamentary return the precise portion at present allocated to Ireland; and thus we would be in a position to claim, if not a liberal, at least a fair share of the imperial contribution for our registration service; what would afterwards remain for the Irish rate-payers to provide, would certainly not exceed £15,000 per annum, which, on a valuation of £12,800,000, would be very little more than a *farthing in the pound*—not a very extravagant payment for the benefits, social and sanitary, of the system.

In conclusion, we hope the government may be induced to deal with this important question in a liberal and comprehensive spirit, popularizing their measure by adapting it to the circumstances and peculiarities of Ireland, and when thus armed with what is founded in wisdom and moderation, we hope they may use their strength to overcome opposition from whatever quarter it may proceed, and firmly (yet quietly) insist upon the passing into law, during the present session of Parliament, of that which has been most truly designated by Sir Robert Peel as a measure of "Justice to Ireland."

J. MERTON BARRY, M.D., Mem. Soc. Sci. Assoc., M.R.D.S.

JAMES KILDAHL, M.A., T.C.D.

JOHN McEVoy.

Adopted at a meeting of the Committee, James Haughton, Esq., in the chair, on the 11th March, 1862. JAMES HAUGHTON.

THE FINE ARTS.

MR. HENRY M'MANUS, R.H.A., Professor of Painting to the Royal Hibernian Academy, and the efficient head master of the Royal Dublin Society's art schools, commenced in the Mechanics' Institute, on Monday, the 25th ult., a series of three lectures on architecture, sculpture, and painting respectively, of the first of which the following is the substance. The lecturer displayed on screens numerous examples of primitive architecture—viz., the monolithic memorial, the mound, the Druids' circle, &c., and of the various gradations of the art through the Egyptian, the Grecian, the Roman, the Byzantine, and the Gothic styles, to which he referred. After the lecture, which was most instructive, and pleasingly rendered, Mr. Chancellor exhibited numerous enlarged stereoscopic views of architectural and sculptural subjects, which elicited warm expressions of admiration, and formed a most suitable addendum to the intellectual enjoyment derived from the evening's proceedings.

ARCHITECTURE.

The object of these lectures is simply to define what architecture, sculpture, and painting are, and how they concern us.

Architecture means the highest poetic and technical attainment embodied in a useful structure. The engineering and mechanical appliances of the present day, with the wide-spread knowledge of geology and natural history, chemistry, &c., leave no room to doubt we are on the right road to excellence in construction; but the poetic element seems in some instances wholly overlooked, wherefore it becomes those like myself, whose business it is to convey instruction, to endeavour to make the poetic part of the art to keep pace with the technical.

Poetry means a thing made, whether in sound, action, or substance, and the maker is a poet, expressing himself in music, eloquence, literature, acting, architecture, sculpture, or painting. The thing thus made may exhibit in its entirety every degree of progress and ability, from rude and simple feeling to the most exalted idea of the beautiful in the sublime. The term "poet," which has a universal significance, is of late limited in its application to measured literary productions. Now, this is arrant monopoly on the part of literature. Poetry, however, as in literature, may be good or bad poetry; but it has no age and is of no country. It is not old because quaintly expressed, nor young because it is in fashion. Poetry is the imperishable and unalterable property of humanity; let us, therefore, qualify ourselves to-day to make good use of it. Feeling this, we must dismiss from our minds the degrading thought that we are an inferior race compared with the men of former days. With our minds free from this fallacy, we must examine how it came to pass that works of superior excellence belong to days gone by. The inquiry just now is seasonable, as a cry is abroad for great architectural genius, showing there is wealth enough to carry out any conceivable magnificence. It was so at Rome in the days of Constantine; but we have better prospects in this transition state, for it is becoming understood that the secret of success lies in art education properly directed. An educated public are the best judges and promoters of true art. Nearly in every instance the committee who selects the architect is in no respect more intelligent in this special particular than the public masses who have no voice in the matter. Couple with this fact that the man of real genius would be trammelled by such clients, and you have the reason why the works of our architects so nearly resemble the intelligence of his employers; but a higher knowledge, and a more correct taste in the public, will demand and obtain an architect who can fitly represent it.

Now let us look at the qualifications of an architect properly so called. His must be a combination of the highest qualities in art, science, and literature, and a philosopher withal. His imagination must conceive and realize all we can desire in the expression of sentiment in a structure. To do this he must have consummate invention, and be a thorough master of design in figure and ornament, both in drawing and modelling, to have some knowledge of colours, and to be particularly cunning in light and shade. The study of æsthetics, or the artistic feeling for the beautiful, will enable him to endow the above with that essential property in fine art called "beauty." Plane and solid geometry, engineering and mechanics, chemistry, geology, and natural history, heraldry and an acquaintance with what was done before his own time, so that he may know how much of himself he has given to his work, will not be the least of his labours; besides he must practically understand the work and materials of the mason, carpenter, plumber, tiler or slater, plasterer, and painter, with a cultivated taste on the subject of decoration in glass or furniture, with the proxy recommendation of being a correct arithmetician. The above being indispensable in the true architect, ~~is it any wonder~~ why we find him so seldom? or when we do find him, that we should honour him?

In contemplating the history of architecture it is difficult to say which took precedence—use or sentiment; for we can readily imagine the primitive dwellers in woods or in tents to have placed a memorial stone, or heap of stones, to record the resting-place of a patriarch or a leader. In this sign of respect for the dead we have the sentiment of veneration exhibited, and it is of the affections the most simple, innocent, and holy; so we find it too in the fine art of architecture. This conscious and voluntary exhibition of gratitude becomes sublimated in architecture when shown in structures for religious purposes. The sentiment in either case in the memorial stone, tomb, shrine, or tower, and the altar, temple, or church, is evident when true genius makes the work. Invention is the faculty which selects features proper for the necessary expression of the sentiment in a structure, subject of course to material, situation, and use. The sentiment must be such as naturally arise out of the customs, politics, institutions, and affections of the people who use them. The structure, therefore, becomes a monument of the degree and kind of intelligence enjoyed by the race or people who built them. The adaptation, then, of a form of building proper to the use which originally gave it its distinctive characteristics, to purposes widely differing, and in no way indicative of the purposes it is used for, is absurd, and it thus becomes a memorial of our incapacity to conceive an original idea. Here is no maker, but a sorry reproducer of obsolete and fossil remains of customs now no more, and with which we find it difficult to sympathise. Here I come to the gist of this lecture, which is to point out to you the origin of new styles in architecture by, as it were, natural development of form arising from local requirements, and by so doing to draw your attention to the indolence and affectation of reproducing old world styles, with which we have little or no associations. What the old dilettanti said about modern architecture—that we cannot invent a new order or style—shows precisely how much the mind can be narrowed by dwelling upon one subject—the study of antiquities. Orders and styles arose, as they must ever arise, out of our wants; they do not come, Minerva-like, clothed in complete armour from the brain, but have their infancy and gradual development, and when complete, serving all the purposes required; they then exhibit a new order or a new style. The transition is a lesson and gives us this assurance, but the extremes show us the styles. This transition and these styles the drawings on the screen rudely indicate, together with their locality and extent.

NEW PATENTS.

LIST of Letters Patent which passed the Great Seal on the 14th and 18th March, 1862, Byrne and Lambert, Agents, 4, Lower Ormond-quay, Dublin.

T. Morris, R. Weare, and E. H. C. Monckton, for "Improvements in batteries for obtaining electric currents, and the products therefrom."

J. Statham and W. Statham, for "Certain improvements in machinery or apparatus for mowing and reaping."

G. White, for "Improvements in apparatus for filtering or purifying water or other liquids."

W. T. Tongue and J. Greer, for "An improved portable self-acting water-engine for extinguishing fires and other purposes."

T. Howard, for "Improved apparatus applicable to steam cultivation."

J. C. Davidson, for "Improvements in thrashing machines."

C. Board, for "Improvements in veneering presses."

J. Price, for "Improvements in the permanent way of railways."

J. Kimberley, for "A new or improved machine for morticing, tenoning, sawing, boring, drilling, and grooving wood."

J. H. Johnson, for "Improvements in apparatus for facilitating the passage of trains up steep gradients on railways."

T. C. Darby, for "Improvements in the construction of horse shoes."

ON THE ESSENTIALS OF A HEALTHY DWELLING AND THE EXTENSION OF ITS BENEFITS TO THE LABOURING POPULATION.*

(Continued from page 64.)

With all the various contrivances and arrangements proposed for the admission of fresh, and the exit of vitiated air, unaided by those appliances which are scarcely consistent with the term natural ventilation, none have come under my observation which secure uniform action, and fully guarantee that the distinct provision made for the exit of vitiated air shall not become the medium for the ingress of cold air, on a change of temperature in the apartment, the frequent consequence of which is a draught more or less perceptible. In order to avoid this evil, various means have been adopted, according to circumstances, with varying success. The use made of chimney-shafts for this purpose has been already noticed. Tubes or shafts, of wood, of clay, or of metal, are also available, provided a constant outward current is maintained by such an application of heat as will sufficiently rarify the air. Hot water has been, and may often be applied externally for this purpose with advantage. I have used gas enclosed with an upright shaft partly of wood, the light being placed behind a square of glass, and the air entering through perforated zinc, with a hopper enclosure; by these means the combined benefit of light and ventilation are obtained from the same quarter. In many situations this simple plan might be easily adopted, and in dwelling-houses generally I believe that gas might frequently be rendered a valuable contribution to ventilation, instead of being injurious to health. As a sunlight, with a double tube, it has been so employed with success.

The utilisation of heat from stove fires, from hot water, or from gas in ordinary use about a house, is apparently so natural and easy a means of obtaining a motive power to assist in the ventilation of dwelling-houses, that I have noticed them under the head of *natural*, rather than of *artificial* ventilation, to which I must now refer.

Artificial ventilation is ordinarily effected by the action of valves, fans, pumps, screws, furnaces, stoves, or other artificial heat, and a variety of contrivances, whereby air is either drawn out or forced into an apartment. In the one case, the space occupied by the vitiated air, which is withdrawn, is replaced by an admission of pure fresh air; and in the other the pure air forced into the apartment causes a displacement of the vitiated air, for the escape of which due provision must be made. In both cases a just proportion between the volume of air which ought to enter and that which should be expelled is necessary; and in order that the fresh air may be adapted for use at all seasons of the year, means must be provided for warming it prior to its distribution in the apartment. The best means of effecting this, I believe, by bringing it in contact with heated fire-brick, suitably arranged in stoves or furnaces. When heated iron is used for this purpose the air is liable to be deteriorated, or, as is commonly said, burnt. Hot water, which is similarly employed has not this injurious effect.

Nothing can be more inconsistent with a healthy system of warming than those arrangements which provide only for raising the temperature of the air already in the apartment, vitiated as it may be. Such is mostly the case when the German hot-air stove is used, and also when hot water is circulated in pipes through the apartments; but either may be employed with impunity as an auxiliary to an open fire.

Whether suction or propulsion be preferable as a motive power, for effecting the change of air in ventilation, is a question which has been much discussed here, as well as in Paris and Brussels. After examining both systems in their practical application, the latter appears to me decidedly preferable, excepting in peculiar cases, when the power of suction may be more readily applied.

When fresh air is forced into an apartment, through suitably placed openings, it becomes more generally diffused than it does when its entrance is dependent on the withdrawal of the vitiated air by means of suction, the tendency of which is to draw the fresh air towards the point of exit, instead of leaving it to disperse and circulate freely. Suction involves the further disadvantage of setting in movement whatever noxious vapours may be within its reach.

Whilst artificial ventilation is mainly applicable to public buildings, to manufactories, and to dwelling-houses of considerable magnitude, its principles may often be adopted in numerous instances occurring in an architect's practice.

For this reason, as well as on account of the great influence which ventilation exercises on health, more has been said on this branch of my subject than some may consider necessary. I cannot, however, quit it without expressing a regret that the science of ventilation has not been more thoroughly mastered, and its practical application more simplified than it would seem to be from the Report of the Government Commissioners on Warming and Ventilation, known doubtless to many of you, and which, with its mass of practical information appears to me to have failed in placing the subject in that

clear light which was contemplated on the suggestions made by Dr. N. Arnott, in 1849, for an investigation by "a committee of eminent scientific men, comprising chemists, engineers, and physicians."

8. Having considered these circumstances in regard to a healthy dwelling which appertain to the locality, and those which are structural, it remains for me to notice very briefly "those which depend mainly, though not wholly, on the occupants themselves—external and internal cleanliness, and a proper use of structural arrangements."

The most suitable provision for rendering a dwelling dry, or for its efficient ventilation, will not secure the health of the occupants, if there be either around or within the abode an accumulation of dirt, whether in a solid or in a liquid state. Houses may, to all appearance, be very desirable dwellings, but if the drainage be out of order, or there are cesspools within their precincts, or untrapped and foul sinks, there is no safety for the inmates. Nor can the close proximity of stables be a matter of such indifference as might be supposed from the practice so prevalent in the most wealthy parts of the metropolis; for one inevitable consequence is that, in the summer, many windows which should be opened for ventilation remain closed, in order to exclude the noxious fumes of the dunghoops.

Neglect of sanitary laws is as much manifested in the country as it is in towns, and on the Continent not less than it is in England. It would be easy to point to spots where the air is unrivalled for purity, and the scenery around of surpassing beauty; and yet such are the accumulations about the dwellings, that it is often difficult to enter the doors without wading through a stream of filth, alike offensive to the sight and to the smell. Can it be a matter of surprise if such violations of the known laws by which God regulates the health of his creatures, be visited with sickness and premature death? With equal certainty as to the issue, we may predict that those who live in close proximity to black and stagnant pools, to foul ditches, or to sluggish open drains will periodically suffer from fever or dysentery, as we do that the house in flames will be consumed if the destructive element be not extinguished, or that the neglected garden will be overrun with weeds and become a wilderness.

Internal cleanliness in the houses of the wealthy, and all that as matters of daily routine are connected therewith, including proper attention to the sinks and traps, as well as the ventilation generally, is, in the main, left to the care of servants;* and often through their ignorance, rather than their culpable neglect, the health of the family, and especially that of the younger children, is very seriously injured, without the slightest apprehension as to the cause. Many instances might be cited in proof of a fact which is calculated to arouse even the most self-indulgent, and to induce them to co-operate in such a diffusion of sanitary knowledge as will alone insure, that which is dependent on the occupants themselves, a proper use of the structural arrangements essential to a healthy dwelling. The middle classes would contribute less grudgingly than they now often do, towards the cost of public sanitary improvements, and would even urge their extension, if they were better acquainted with the laws of health, whilst a practical knowledge of such of them as relate to in-door life—whether it be that of the dwelling house, the manufactory or the workshop—would lead them duly to appreciate the advantages of cleanliness and good ventilation, and to see that their benefits extended more generally to those hives of human industry where numbers of working people congregate for many successive hours, partly by gas.

If the want of knowledge and forethought debar many in the upper and middle walks of life the full enjoyment of a healthy dwelling, how much more is it the case in regard to the laboring population, most of whom are under the further disadvantage of having scarcely any choice as to the external circumstances of their dwellings, and often but little as to the internal accommodation. The difficulties arising therefrom with which working people have to contend, in most thickly populated towns, are well known to be very great. I shall not dwell upon them here, nor attempt to point out the degree in which they are increased by habits of intemperance—the most fruitful cause as well as consequence of domiciliary wretchedness. Such a calculation as would show the probable amount expended by the working population in the metropolis and its suburbs in the 10,200 houses open for the retail sale of intoxicating liquors would be instructive, both as to one fruitful cause of the evil, and also as to legislative measures of an indirect character needed for its removal.

I have now to ask your attention to the second branch of my subject—the extension of the benefits of a healthy dwelling to the labouring population.

The numerous discussions bearing on this question which have taken place in Parliament, in the daily papers, as well as in other periodicals and pamphlets, might lead to the supposition that its importance is now duly estimated by the public; but those who have sounded the depth and scanned the wide-spread extent of the evil to

* The recent publication in a cheap form of Miss Nightingale's highly practical Notes on Nursing affords the means of conveying many valuable lessons on this subject to domestic servants. I have endeavoured to give some practical instruction in a lecture, entitled "Home Reform; or, what the Working Classes may do to Improve their own Dwellings."

* Read at the Royal Institute of British Architects by Henry Roberts, F.S.A.
† A simple test, whereby the deterioration of the air could be readily ascertained, is a great desideratum.

be remedied well know that such is not the case, and have too often seen the responsibility of contributing to its removal ignored by those who ought to feel its weight; whilst in some deeply to be regretted instances the want of a due estimate of the difficulties to be overcome, and of the requisite practical knowledge, has led to the pursuit of measures which, owing to their non-remunerative pecuniary results, have tended seriously to retard the progress of the movement, which was practically commenced eighteen years since.

The pecuniary features of the question are of such vital importance, from their necessary bearing on the adequate extension of the work, that I cannot here omit the expression of my belief that if the actual expenditure in providing improved dwellings for the labouring classes in towns had more generally been managed with such discretion as to yield the very moderate return of 4 per cent., or even $3\frac{1}{2}$ per cent., after the payment of all expenses and the providing a sinking fund for the repayment of the money laid out, there would have been no difficulty in obtaining from philanthropic capitalists an amount sufficient for building a very large number of improved dwellings; and in evidence that such a return is obtainable numerous examples might be instanced of that, and a higher rate of interest on the outlay having been regularly obtained. Whilst some of these will be noticed hereafter, I think it right to remark, in reference to certain exceptional cases, that due allowance should be made for the difficulties and extra expenses attendant on most new undertakings, as well as for the experimental nature of some of the establishments in which the accommodation provided has been of a very mixed character; the results in those instances showing, I believe, invariably, that new houses for families yield a better return on the outlay than lodging-houses for single persons; a purpose to which, however, old buildings have been adapted with very satisfactory pecuniary results.

Speculative builders, or those who are merely seeking what is usually called a good investment, would not, of course, consider 4 per cent. a sufficiently remunerative return; but I confess to feeling some surprise that, amongst the many who have accumulated large fortunes in connexion with the building trade in the metropolis, I know of only one firm, that of Messrs. Newson & Son, having so invested a part of the gains derived, in a large measure, from the labor of the working classes. It may, however, be owing to my limited means of information in this respect that I am unable to name other instances in the metropolis; though in Edinburgh several such examples were lately pointed out to me, which I could not but regard with peculiar interest and as well worthy of imitation. Some notice of these buildings is given in my report made at the Glasgow meeting for the promotion of social science. I have also seen with pleasure, in a very useful monthly paper, the *British Workman*, which circulates extensively, amongst that class of readers, a view and brief notice of a village near Lowestoft rebuilt by Sir Morton Peto, which is described as one of the most picturesque villages in the kingdom.

Architects have sometimes been reproached for a want of interest and for exercising so little influence in regard to the improvement of the dwellings of the labouring classes. Knowing, as I well do, how rarely the members of the profession* have to do with buildings of this class, such a charge is to me only one amongst many other proofs of the prevailing ignorance with regard to the measures and machinery best adapted to effect a remedy of the evil in question, and which I shall endeavour, as far as my ability and experience enable me, to point out, unbiassed by any interest whatever, and only actuated by the earnest desire of contributing to an object which I believe is most intimately connected with the physical, the moral, and the religious improvement of the masses of our population.

The measures for effecting this much-needed reform may be classified under three heads:—

1. Those of a legislative character, and those for which the Executive Government are responsible.

2. Those which ought to be adopted by landowners and employers generally for the benefit of their dependants, whether as tenants or work-people constantly employed by them.

3. Those which originate from benevolent motives, and are undertaken either by associations or by individuals in order to aid in helping themselves those who need such aid.

In noticing successively these three classes of measures, some illustrative facts will be stated, which are partially the results of observations made during a residence of nearly five years on the Continent, for the recovery of health. Some of the investigations then made lead me to remark, in reference to the first class of measures, that a jealous respect for the rights of persons and property, which is our security for many of the inestimable advantages enjoyed under a free government, has a manifest tendency to impede the carrying out of such public improvements as those which, under

arbitrary rule, have been effected with unprecedented rapidity on so gigantic a scale in the metropolis of a neighbouring country. What, I think, in our own metropolis, we have a right to complain of, and ought to feel ashamed at, is the bungling and pettifogging manner in which many of our new streets have been formed, and fine opportunities for obtaining magnificent effects irrecoverably lost. It would be invidious to point them out: they will readily suggest themselves to you. Time will not allow me to dwell on the important bearing which the formation of new streets has on my subject; or many facts which have come under my own observation might be stated, particularly some with regard to that great financial failure, Victoria-street, where several fruitless attempts were made to obtain from the managers, on reasonable terms, back land, as sites for dwellings suited to the displaced population, who, as a necessary consequence of the clearance which had been made, were huddled together in a frightful degree. This is but one example of what has so frequently taken place elsewhere in our own metropolis, owing to the want of a compulsory provision for the displaced poor. The same neglect on the part of the Government was the cause of an incalculable amount of suffering in Paris, when the people who tenanted its narrow and winding streets were forcibly ejected, and often their few articles of furniture placed on the *pavé*, they themselves not knowing where to seek shelter. I visited more than once, in the spring of 1858, a kind of encampment of 600 such families, formed not far from the Barrier de l'Etoile; and heard from some of them their pitiable tale, and the exorbitant rent they were paying for temporary hovels, which the police had warned them would be pulled down in three months, and they forced again to go, they knew not whither. From a sense of duty, and encouraged by the fact of the Emperor having caused the paper which I read before the Institute in 1850 to be translated and widely circulated in France, I thought it right to bring this subject under his Majesty's personal consideration, in a memorial, which was graciously received, and, I hope, has not been altogether fruitless.

Our own legislative measures tending to give to the labouring population the benefits of a healthy dwelling only comprised, when I addressed the Institute twelve years since, the passing of the Public Health Act, and the Nuisance Removal and Diseases Prevention Acts. Since then several measures, the necessity of which was dwelt upon in my paper, have been adopted, such as the removal of the tax on windows and on bricks, for which we are indebted to the administration under Lord John, now the Earl, Russell; the regulation of common lodging-houses (one of the most amongst the many valuable efforts of Lord Shaftesbury in this cause); the empowering, under the Labourers' Dwelling Act, the formation and general management of independent local associations, formed for providing improved dwellings, on the principle of joint-stock companies, with limited liability. Other bills have been passed for facilitating the construction of improved labourers' dwellings and cottages in Scotland and in Ireland; but, during the last session, a bill which would have given to English landowners, tenants in tail, the power of raising money for building improved cottages on their estates, very similar to that granted in Scotland, was, after it had passed the House of Commons with but little opposition, rejected by a majority of sixteen to thirteen in the House of Lords, at the close of a debate which had at least the appearance of showing how much less real interest is taken in this question than might have been inferred from several debates at the opening of the session, relative to the destruction of labourers' dwellings, consequent on the introduction of railways to the centre of the metropolis; the main result of which was the insertion of clauses in some of the railway bills obliging the companies to provide certain cheap trains at hours suitable for the conveyance of working people to and from the precincts of their residences out of town. A standing order, intending to apply to cases in which Parliament granted power to pull down houses for the working population, was passed by the House of Lords in 1853, at the instigation of the Earl of Shaftesbury; but, as far as practical results, it has become a dead letter.

(To be continued.)

PROFESSOR SMIRKE'S LECTURES ON ARCHITECTURE AT THE ROYAL ACADEMY.—LECTURE II.

(Continued from page 63.)

I WILL now invite your attention to two splendid folio volumes of drawings preserved in the Royal Library, of which they form a part. The drawings are executed very carefully and cleverly in outline, slightly shadowed and tinted, upon vellum. The series comprises plans and views of the chief royal palaces of France, together with some original designs, by Jacques Androu du Cerceau, one of the most eminent among the originators of the Renaissance in France, born about 1515.

These valuable and interesting drawings were made for Catherine de Medicis, and certainly formed part of the Royal Collection of France. How they subsequently became transferred to their present place on the shelves of our great public library is not recorded.

It is not my intention to particularize all the buildings represented

* My long and highly esteemed friends, Mr. Sydney Smirke and Mr. G. Gilbert Scott have manifested in their published works a warm interest in this object: the former, in his "Suggestions for the Improvement of the Western Part of the Metropolis," published in 1834, and the latter, in his "Remarks on Secular and Domestic Architecture," published in 1857;—whilst the voice and pen of Mr. George Godwin have not only been exercised successfully for its advancement, but often also in vindicating the position and feelings of the members of his profession with regard to the question generally.—H. R.

in these volumes; indeed, so rich was the French crown in Chateaux and Maisons de Plaisance in the sixteenth and seventeenth centuries, that it would extend my notice far beyond its proper limits were I to do so. All the earlier examples are characteristic of the transitional period when they were erected. In plan they retain much of the type of a mediæval fortification; and this may have been probably occasioned in some cases by the erection of the palaces on the foundations of some more ancient castles of a strictly military character. But there are few that retain any provisions whatever for active defence; the bastions become clusters of embowed windows, enriched with many architectural embellishments, and the intervening curtains are occupied entirely by wide windows, lofty chimneys, and other features of domestic architecture, to the exclusion of the loop-holes and frowning machinations of the preceding ages. Those highly picturesque buildings, the Chateau de Chambourg and that of St. Germain au Laye, for example, are buildings of this mixed character. They are described as Batiments de Plaisance, and present throughout the evidence of their having been built for agreeable residences; whilst, on the contrary, the plan alone of these buildings would convey the idea of a strictly fortified place, with moat and drawbridge, and like appendages.

The Chateaux of Blois and of Amboise are interesting examples of this picturesque, transitional style; one of the prominent features of which is the very steep and conical roof, enriched by most elaborate cresting and finials; the latter rising often to a considerable height, sometimes of metal, and sometimes executed in glazed and coloured terra-cotta.

The variety imparted by these means to the sky-lines of the roofs is one of the chief sources of the picturesque in the buildings of this date in the north of Europe. It is worthy of note that at the Chateau Amboise, the chapel, which is conspicuous in the group of domestic buildings which compose the chateau, is strictly Gothic in general outline as well as in its details; having lofty and slender pinnacles and buttresses, and traceried windows; whilst, as I have stated, every other part of the palace is in that particular phase of the Renaissance which prevailed in France after the general discontinuance of the Gothic manner. This distinction would seem to indicate that a sense was felt of the propriety of adopting for ecclesiastical buildings a character of architecture differing from that employed in designing domestic buildings.

I have on a former occasion expressed my opinion that such a distinction seems not unfounded in reason and good sense. To adopt a strict Mediæval style of design in all its purity and completeness in the erection of a domestic building—a private residence, for example, where all the luxurious requirements and refinements of modern social life are necessarily to be expected—is a task full of embarrassment and difficulty to the architect; necessitating frequent departure from ancient types; whilst, on the other hand, the Mediæval style lends itself with great facility to the construction of a church or a chapel in its familiar form, and with its necessary adjuncts.

There seems, indeed, a moral as well as æsthetic propriety in thus setting apart a special style to buildings of a sacred character; visibly distinguishing it from a building erected for domestic and, as it were, vulgar use;—a distinction analogous to that which led the Egyptians to preserve a hieratic character in their sacred writings, as well as in their sacred architecture, long after classic forms and demotic alphabets had become familiar to them. I may add, with reference to this example at Amboise, that there are no indications whatever to justify a supposition that this Gothic chapel is not cœveal with the surrounding buildings of the chateau; which are, as I have said, of a perfectly Renascent aspect.

The Chateau Valeri, which is in the same early French style, is particularly notable for the boldness and vigour with which it is designed—a manner so broad and forcible as to well merit the character of grandeur.

The Chateau de Montargis is an example of great interest, having less of the Renaissance element in its style of architecture. The sectional views convey an excellent idea of the interior of the chateau as it appeared at the time of Catherine de Medicis. The capacious chimney-breast in the great hall is especially observable, as characteristic of the style of the period. On the front of this chimney-breast is represented, in sculptural relief, the romantic story, which tradition has handed down, of the faithful "Dog of Montargis," who avenged the death of his master: to quote the somewhat quaint old French phraseology in which the volume adverts to the legend, it describes the subject of the sculpture as "L'histoire digne de mêmêre d'un combat d'un gentilhomme contre un chien, lequel gentilhomme, étant vaincre par le chien, confess a avoir tué son compagnon, maître du celluy chien."

This practice of sculpturing or painting some family legend, or other interesting historical incident, over the huge chimney-piece round which the members and retainers of a family were habitually assembled, seems agreeably characteristic of the habits of the time; and presents a contrast very unfavourable to the manners, and even to the taste, of the present day, when we compare these simple, and

perhaps somewhat rude, yet vigorously-expressed illustrations of our social state, with the paltry ornamentation of a modern parlour, shabby, unmeaning looking-glass and putty frame which usually usurp this place of honour in the best living-room of our modern dwelling-houses. The chimney-pieces or fireplaces themselves suggest similar observations. In the case before us of the great hall of the Chateau Montargis, the chimney-piece, as represented in this book, is typical of that feature in all the great halls of the fifteenth, sixteenth, and seventeenth centuries, throughout Europe. A great canopy or hood advances forward, overhanging a hearth capacious enough for the combustion of fuel sufficient to warm the whole household collectively. This overhanging chimney-breast is not usually carried by the projecting piers of solid masonry or brickwork which now-a-days generally limit greatly the radiation of heat, and send it up the chimney rather than into the room. The breast, on the contrary, is usually carried by pillars, or other carved supports, attached to the wall, and ornamenting as well as supporting the hood which is to carry off the smoke; at the same time projecting so moderately, and occupying comparatively so small a space, as to cause very little obstruction to the radiation of warmth.

No doubt these rude contrivances may not be always very effectual in carrying off the smoke; but it may well be questioned whether a little smoke was not more than compensated for by the genial embrace which these old fireplaces offered to the old social circle. Besides, let us candidly admit, with all the unsocial contractions which modern science has engendered, are we not still occasionally a little troubled by smoke?—smoke, without any compensating beauty, and for which we get nothing in return but damaged furniture and, perchance, a ruffled temper.

I must not pursue the subject of chimneys further than just again to remind you of the æsthetic advantages afforded by the old mode of treating the chimney hearth. The contemptible little pinched-up compositions of thin, flat, marble slabs which now usually decorate this social centre of domestic hospitality contrast most painfully with the large and generous treatment of the fireplace, and with the sculpture and painting, which were lavished during the period to which I am adverting, on this place of honour in the halls of former days.

Although time has left us but few illustrative examples of these fireplaces in England, we have but to visit Nuremberg, or any other of the older cities of the Netherlands, to find noble examples still surviving the wreck of time. Even the great hall in the Hotel de Ville, in Paris, probably familiar to you all, which is of the time, probably of Francis I., affords a most remarkable example, sufficient to dwarf down into insignificance every similar object I have met with in England, although I am aware there are examples of the time of Henry VIII., of Elizabeth, and of Charles I., of no mean character.

At the magnificent Chateaux of Blois and Gaillon, the most remarkable features are their gardens. They are, of course, laid out in the formal artificial manner usual in the gardens of the early period to which these examples belong. In the centre of both these gardens is a fountain of much elegance of design, although the jets of water issue from sources not altogether unobjectionable. The practice of throwing the water from the mouths of human masks cannot be defended, although it is a very common expedient. It was suggested probably by the gargoyles of Mediæval times, when monsters, often of the most preposterous design, were made to emit water, both in fountains and at the eaves of roofs; but these, also, may claim a far more ancient origin. We know how commonly therein-water which fell on the roofs of Greek temples were made to issue from the mouths of lions carved on the cyma of the cornice: they were, in fact, the true gargoyles of the Greeks. The practice may perhaps be partly due to æsthetic causes; for there are few subjects more captivating to the sculptor than the lion's head, so admirably sculptural in the breadth and even in the grandeur of its details. But still another and remoter origin may be assigned to the practice. The overflowing of the Nile, which, as you know, annually reanimates that arid country, and gives occasion to so much periodical rejoicing, occurs when the sun is in Leo,—a coincidence quite sufficient to lead the Egyptians to adopt the lion's mouth as the source from whence their liquid treasures were made to issue.

At the fountains of the Chateau d'Anet jets of water are seen issuing from Diana's bow, and from the horns of her accompanying stag. I am, indeed, bound to admit that the rude artists of this not highly-polished nor very fastidious age caused jets to flow from still more exceptional, although, perhaps, more natural sources.

These devices are common enough at the period of which we are speaking, and can only be excused on the ground of the extreme difficulty (which all must have felt who have tried their hands at designing fountains) of devising any perfectly unobjectionable, and yet ornamental mode of emitting the water. But, perhaps, the most notable feature in these early French gardens is the arcade, or covered way, which encloses the whole area. As a gallery offering a sheltered walk at all seasons of the year, whether too hot or too wet for out-of-door exercise, these covered walks must always have been a welcome refuge. The luxury was probably borrowed from the Italians, with whom these arcades or colonnades had already become

a favourite adjunct to the villa. They, also, in their turn, may claim a classic origin. Those who have read Pliny's description of his Villa Laurentina will remember how he dwells on the crypto porticus as one of the luxuries of his favourite retreat—a luxury which, though preserved in the cloisters of the Middle Ages, seems to have been, without good reason, overlooked and neglected in modern gardening.

In these French gardens I also perceive indications of the pergola, or trellised walk, which forms so elegant as well as so commodious a part of almost every well-appointed Italian garden.

I will not further detain you by dwelling on the other beautiful chateaux represented in these volumes, although they present to us most attractive objects, such as Chateau Chenonceau, one of the most theatrically-picturesque buildings that can be imagined—Chateau Chantilli, perfectly Mediæval in its general design, although in its details savouring strongly of the more modern style that Catherine di Medicis encouraged, and had, in fact, introduced into France—Chateau d'Anet, less Gothic, but equally varied, original, and picturesque.

Such are the contents of these curious and valuable volumes. A careful and critical examination of them will satisfy any impartial mind that they take a very narrow view of the subject who fancy that all architecture necessarily divides itself into the Classic and the Gothic schools, and that, therefore, if we reject the one, we must necessarily adopt the other. Such, happily, is by no means the case. I have on a former occasion endeavoured to show that such was not the case when the quattro-centists of Italy put away Mediævalism in art with the casque and gauntlet which they had outgrown. They were too good artists and too sensible men not to perceive that modern civilization required something more than a return to columns and pediments, and they accordingly struck out a style of design perfectly original, and in many respects more beautiful than anything that had preceded it.

In the same way we find that when, a little later, the artistic and inventive genius of France was directed to the production of designs in the Renaissance style, it never occurred to their fertile minds that it was incumbent on them to plunge into a purblind system of copying the works of former times. On the contrary, we see in these buildings of the time of Catherine that a style of great beauty and force was possible, which yet was equally remote both from Greek and Gothic. True art is ever young and productive; it needs only adequate incentives and encouragement to warm it into life. A well-stored portfolio of photographs would turn any man, however uneducated in art, into an architect, if the careful repetition of old forms be all that is required of him.

As I have devoted this evening to looking into a few books, I must be excused if in closing one volume and opening another, I find myself following a somewhat desultory course. It does not, however, appear to me to be necessary to observe any especial, historical sequence. The book which next comes to hand is a splendid volume of earlier date than that to which we last adverted, and is not without a certain amount of romance in its history, for it consists of verses composed by the Duke of Orleans after his capture at the battle of Agincourt, and with which composition he beguiled the tedium of his imprisonment in England. The illustrations are beautifully-executed miniatures, and of great interest as explanatory of the buildings, habits, and costume of the period. One of these illustrations is of especial interest, as it presents a view of London in the fifteenth century. It is taken on the banks of the Thames, and represents the Tower in the foreground and the bridge in the middle distance. The very rapid shoot of the current at the bridge is plainly indicated. At a short distance from the Tower is seen the creek of "Bellyne's gate," on the banks of which creek and below bridge is a considerable building, probably the Custom-house. The architecture of this building is portrayed with great minuteness, and is manifestly drawn from the actual objects, not conventionally but with considerable effort at correctness of representation. It is worthy of observation that the lowest story consists of an arcade of perfectly Renaissance character, the arches being circular, or nearly so, springing from ordinary columns apparently very much like Roman Doric.

The superstructure, however, is of quite Mediæval character, presenting a series of steep gables of dissimilar designs and with the windows apparently mullioned. The perfectly Italian aspect of the lower part of the building seems to me to be conclusive evidence of the existence of the style of the Renaissance in England very much earlier than is usually supposed.

The Porta Honoris at Cambridge is generally pointed to as one of the earliest, if not the earliest, example in England of the quasi-Classic style. This gateway, however, must be nearly 150 years later than the building, near Old London-bridge, so carefully delineated in this illumination.

(To be continued.)

The Rathgar and Sallymount Improvement Bill has come before the Committee of House of Commons as an unopposed measure, and was referred back to the Committee of Selection.

THE LATE ORDNANCE FRAUDS.

In the House of Commons, on the 21st ult., Mr. Whiteside drew attention to the recent frauds of Connolly and McIlwaine, and referring to the mode adopted at the War Department Office in Dublin Castle, of keeping public accounts, asked the Chancellor of the Exchequer to explain it, and said, "it appeared that the practice was that a contractor sent in an estimate, and when the work was done furnished an account to Colonel Durnford, the inspecting officer, who examined and signed it, and finally retained it in his possession. It was then handed to Mr. Connolly, who, having added other items, which he could do at his pleasure, and without any check, sent it for payment to the War-office in London. If this establishment had trusted Colonel Durnford to pay the bill no fraud could have been committed, but they preferred dealing with Mr. Connolly, and when checking the account they consulted the contractor. Now it happened that the contractor was as great a rogue as the clerk, and he willingly endorsed all the fraudulent interpolations of the latter. The account having been taken out of the hands of Colonel Durnford in the first instance, that officer had no means of protecting the Treasury, which was left completely at the mercy of the clerk and the contractor. The recent trial proved how they had improved the occasion. The overcharges, it appeared, were chiefly for slating, and it turned out that as much slate had been charged for as would have slated the Isle of Wight (laughter). The judge who tried the case delicately hinted that, in his opinion, the frauds charged in the indictment formed only a very small portion of the loss to the public, for the system had been going on for years; and a paper which was found in Connolly's lodgings, arranging the division of the spoil, showed that in the last six months these two worthies had abstracted no less than £1,411, which would give a rate of nearly £2,000 a year for each of the two gentlemen. One was a religious man, and the other a man of fashion, and they both moved in the highest range of their respective circles."

Sir G. C. Lewis admitted the correctness of the statement. It appeared that these frauds first commenced in the year 1848. The manner in which the accounts were kept was this—the commanding officer of Royal Engineers certified the work done by the contractor; he delivered the certificate to the chief clerk of the department, and the chief clerk, in collusion with the contractor, altered the certificate by increasing the sums. The chief clerk transmitted the document so altered to the War-office in London, and it was there examined, and an order was then sent to the contractor upon the paymaster in London. The chief clerk was supposed to be a check upon the officer of Engineers, and the contractor was supposed to be a check upon the other two officers. That was the practice of the old Ordnance-office, and it was continued when the departments were combined. The right hon. gentleman said that it was a great mistake to transact the business in that manner, because if the payment had been made on the part of the officer of Engineers all possibility of fraud would have been avoided. But suppose there had been collusion between the officer of Engineers and the contractor, it is quite clear that precisely the same result must have occurred. They might have a system of checks that would make fraud almost an impossibility; and the practice of the old Ordnance Department had been found sufficient for the great majority of cases. But in the present instance, the fraud had remained undetected for a number of years; and he (Sir G. L.) believed that at first the additions were inconsiderable, but that impunity led the persons concerned to be bolder, and last year he believed the public were defrauded to a greater extent than in the earlier years. The frauds proved against these persons were only to the extent of £1,400, but he was informed that the actual amount was considerably more. He had some difficulty in stating that amount, because it might operate against the character of the accused persons (laughter). Of course there were degrees of fraud, and the persons accused might have friends and relations whose feelings might be hurt by any statement he might make in the house. The frauds were detected in this case by a clerk in the office in Dublin, who, suspecting that something was wrong, wrote up to know the amounts that had been paid, and as soon as the comparison was made the fraud was, of course, detected. The regulation that had been made by the department in consequence of this discovery was, that the commanding officer of Engineers should send up to the London office a duplicate statement, so that that would be a check upon the clerk. Of course, when a crime of this kind was detected, there was no difficulty by providing security against that particular kind of fraud; but the difficulty was to provide securities against any means of defrauding that any ingenious person might devise.

Sir F. Smith observed that there was an estimate forwarded to London for each district work, which estimate was entered in a book, and it was the duty of the clerk at once to report when there was an excess of that estimate. But it appeared that in this case the fraud must have been committed by alteration or erasure after the bill had been made out, and he suggested that for the future no bill should ever be paid in which there was the slightest erasure or interlineation.

THE LORD LIEUTENANT'S IRISH ART PATRONAGE.

RARELY are centred in one individual such a number of attributes as distinguish the present viceroy of this island, and perhaps more rarely still are they—if possessed—so practically applied to the general benefit of mankind. Lord Carlisle's fame as a distinguished *litterateur* and author is universal, and had preceded his advent to our shores; but since that period, which is so far back as to justify a regard of "ancient friendship," the inhabitants of this portion of Her Majesty's dominions have been and are most especially indebted to his Excellency's highly cultivated mind, his thorough appreciation of the beautiful in art, of the glorious achievements of science, and his ever anxious desire to contribute to the commercial and industrial development of our nation and its social progress. Scarcely since the commencement of our mission has a single publication been produced in which the name of Lord Lieutenant "Carlisle," ministering in some form or other—but mostly by the prestige of his presence and his invaluable counsel—to the advance of the Irish people, has not been recorded; and not the least graceful act of his long and useful career is that most recent one, of his desire (substantially manifested) to improve the architectural character of our ecclesiastical structures, which had been until very lately—and still is partially so—quite in contradiction to the popularly supposed superiority of all our public buildings.

The competition in which architects were invited to submit designs for the rebuilding of St. Andrew's Church, evoked many beautiful suggestions, and reflected the highest credit, with a few exceptions, on the skill and taste of the authors; but amongst them unquestionably shone pre-eminent that by Mr. Lynn (Lanyon, Lynn, and Lanyon), which was (we believe with unanimity) ultimately adopted. The calculation, however, of the cost necessary to the erection of the building according to same, resulted in establishing the ambition of the committee beyond their available funds, and the consequence was, that after a protracted delay, involving circumstances to which we need not necessarily allude, a contract was entered into with an eminent builder (Mr. Butler), according to an *amended* design, "the mere shadow of its former self," *sans* cloister, *sans* spire, *sans* various elaborate details—in fact, *sans* nearly every one of the beautiful points which distinguished the original design. The demolition of the remains of the former church is being proceeded with, and preliminaries for the commencement of the new are far advanced. In this state of affairs his Excellency conceives the happy and laudable idea, that his viceregal example as a donor might stimulate others to come forward and provide a sufficiency of funds, even at the eleventh hour, for the completion of the building, according to "the beautiful design of Messrs. Lanyon," and munificently offers "to give an *additional* sum of £50 for this purpose, provided that the requisite amount should be elsewhere levied;" at same time expressing a hope, "that in a neighbourhood where so many houses and shops exhibit a marked progress in architectural improvement, the parish church will not be almost the only building shorn of its few adornments."

We feel assured that the Dublin citizens will fulfil the condition, and—if even with no more exalted feelings than mere grateful acknowledgment of his Excellency's worthy example—come forward *liberally and speedily* before it is too late to retrace steps.

NEW ASSIZE COURTS, MANCHESTER.

CONSEQUENT on our recent visit to Manchester, we are afforded an opportunity of presenting our readers with a view and description of the important structure for courts of assize, at present in course of erection at Strangeways, in that city. Although the skeleton of the building is little better than half completed, a tolerably truthful idea may even now be formed of the beautiful and effective parts of the general design, and some of the elaborate cut stone details are already developed to great advantage.

Our engraving represents a perspective, embracing the principal front towards Gt. Ducie-street, and one of the flanks—viz., that nearest the city; but since its preparation some slight deviations have been made on each, which, however, do not materially affect the *total ensemble* of the design, but chiefly the central portico, where a single gable spanning the projection is substituted for the three gables, as shown. For the appointment of architect to this building there was a very brisk competition, and numerous beautiful plans were submitted by local and other architects; however, "the day was gained" ultimately by a youthful and talented practitioner, Mr. Alfred Waterhouse, of Manchester, architect, under whose directions the building is now progressing. As may be perceived, the principal entrance is placed centrally, and is approached by a spacious and lofty flight of steps leading to a great hall—100 feet in length by 48 feet in width, and 80 feet in height—communicating with two courts for civil and criminal business respectively, and with ample corridors, off which are situated the various official departments, witness' and refreshment rooms, &c. Immediately over the great entrance doorway is the grand jury assembly room, and the judges' residences are comprehended in the group of buildings seen at ex-

treme end, and connected by a screen with main structure. The internal decorations are handsome and appropriate, especially those of the great hall. Darley Dale stone—seemingly an excellent material—is employed for the main facings, but Dalbertrie grey granite is introduced for relief into the window shafts and other portions. Mr. S. Barnall, of Hulme, is the contractor, for about £70,000; and Mr. Littleler, the clerk of works, to whom we have to express our acknowledgments for courteously permitting us an inspection of the building, and for the particulars above given. It is expected that these courts will be open for business in the summer of 1863, and that some formality and *ecclat* will accompany the inauguration.

CASTLEBAR NEW LUNATIC ASYLUM.

We learn from the *Tuam Herald* that on opening the tenders—thirteen in number—for this work, the highest was that of Messrs. Butler, of Dublin—viz., £28,460, and the lowest, Mr. Egan, of Tuam—viz., £18,848 8s. 9d. This is truly a wide difference! We understood that an eminent Dublin surveyor was estimating for Mr. Egan, but it appears the latter did not carry out the arrangement, and that this valuation was obtained and adopted by Messrs. Wardrop and Son, whose tender amounted to £22,559, the second lowest. The figures at least represent a prospective saving to the county of about £4,000, but it would appear questionable if the work will prove remunerative to the contractor based thereon.

COMPETITION.

ALTERATIONS and additions are proposed to the Court-house of Wexford, at an expenditure not exceeding £3,000. The grand jury offer a premium of *twenty-five pounds* for the best plan, but "do not bind themselves to employ the architect who may be successful."

THE DUBLIN MARKET BILL.

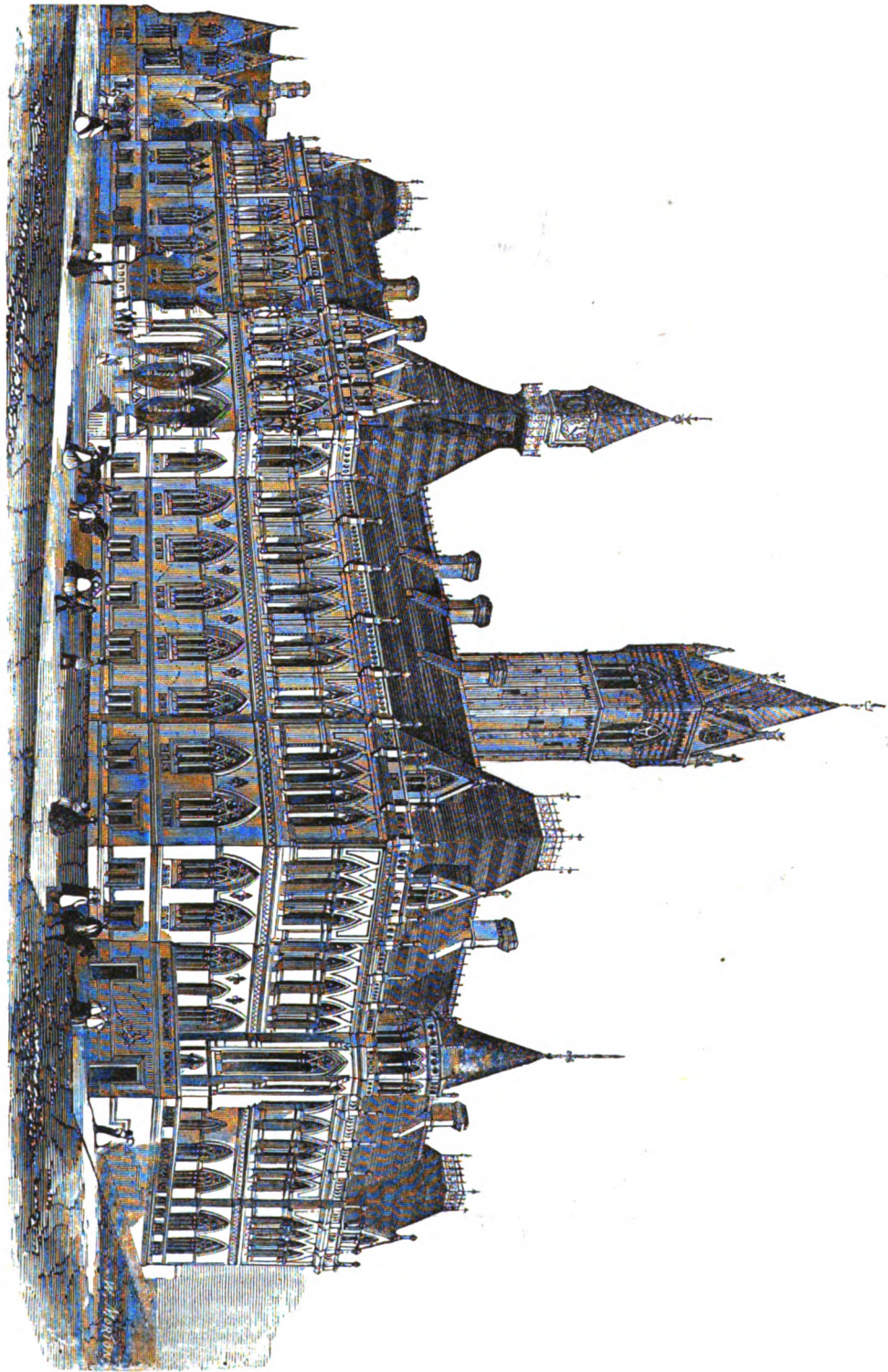
OUR own opinions on this subject—which engrosses so much attention at present pending the result of the enquiry before a Parliamentary committee—are in many respects so fairly represented in the expressions of our able contemporary, the *Agricultural Review*, that we give the following therefrom, but we do not go quite so far as to say that Smithfield should "be got rid of," rather let it be improved and maintained for *certain* purposes, while the establishment of another great depot for *export* purposes, chiefly at the North-wall and convenient to the shipping, would be a consummation devoutly to be wished for. We shall return to the question:—

"The Corporation seems to be acting the part of the dog in the manger in reference to market accommodation for the city. On the question being brought under public notice, the inadequacy of the existing accommodation is admitted by all parties. No one has the hardihood to deny that the markets of Dublin are a disgrace to the city in every respect. Yet, on a movement being made by private enterprise to provide a remedy, the Corporation throw every obstacle in the way; and to get out of the difficulty in which their obstructive policy places them, they, at the eleventh hour, promise to provide the required accommodation, while every one knows that their undertaking to do so is not worth the paper on which it is written. The citizens would very fairly object to be taxed to provide funds for carrying out any such scheme, which is certain to be very imperfectly done under the corporate superintendence, and which, moreover, private enterprise seeks to accomplish as a commercial speculation.

"The subject of market accommodation for the metropolis of the country is too important to allow of private considerations or class interests interfering with it. Smithfield market is inadequate for the purpose; it has been so for years, and is of course becoming more so every day. The proposed enlargement of Smithfield would very imperfectly provide a remedy; besides any enlargement of it would not supply what is now absolutely required—a *free market*, in which every dealer may bring forward his own stock, and become his own salesmaster if he pleases.

"Whether the premises on the North Wall are the most suitable for the purpose is a fair subject for consideration. Into this part of the question we do not purpose to enter on the present occasion; but we shall return to it next week. In the meantime we may assume it as proved beyond controversy, that extended market accommodation must be provided, and that any possible enlargement of Smithfield market would fail to adequately supply it.

"The opposition which the proposal for the removal of the London Smithfield market encountered for years shows how difficult it is to deal with vested interests. But with the experience of the advantages of the change, we fancy that the greatest stickler for the retention of the London Cattle market in Smithfield would scarcely support a proposal to have the market transferred from the Copenhagen Fields to the old quarters. Let us get rid of the nuisance of our present Smithfield, and the wonder will be how the public put up with it so long."



New Assize Courts, Manchester.

MR. ALFRED WATERHOUSE, ARCHITECT.

THE LIBRARY
OF THE
UNIVERSITY OF MICHIGAN

THE SANITARY STATE OF IRISH TOWNS.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR—I congratulate you on the very useful and benevolent project you have taken up—that of reporting on the sanitary condition of the various towns in Ireland. Many of them are frightfully bad in that respect to my knowledge. If you would permit a suggestion—it is, to look after the drainage, and trace as you will be able, in but too many instances, the close connection between the sewer and the water supply for the use of the inhabitants; the filth, external and internal, of the dwellings of the poorer classes every body can see, but the other thing—that the people every day drink water tainted with *fatid matter from cesspools, pig-sties, the town sewers, &c., &c.*, is not so evident to the ordinary observer.

The fearful consequences of this habitual use of poisoned water is too well known, and the exposure of such a state of things, wherever it exists, is a noble work of charity—of a far higher character than very many of the ostentatious scatterings about of money dignified with that title.

J. M'E.

LAW NOTES—SPECIAL.

LONDONDERRY ASSIZES (before Judge Ball).

Louch v. Crawford; Crawford v. Louch.—In our last impression we noted that these cases—involving in the first instance a claim by an architect, Mr. Fitzgibbon Louch, of Derry, for £262 11s. for professional services, and in the latter a contra demand by executor of the deceased client for damages sustained to a property by reason of an alleged mistake committed in the laying out of some recently erected houses thereon—were still at hearing, and we now give full particulars of evidence and the result.

After counsel for plaintiff in the first case had made opening statement, the learned judge suggested, that as numerous items of account should have to be examined, and as other business in which the counsel engaged were concerned was pressing, and would effect justice being fully done to each party, this matter might be left to arbitration. An arrangement was accordingly entered into that the plaintiff and defendant respectively selected a juror, who in their turn should appoint an umpire, whose decision would be confirmed by rule of court. The names of the parties so selected are Messrs. William C. Gage, J.P., and Samuel Gilliland, J.P., as arbitrators, and Mr. R. W. Newton, J.P., as umpire—all gentlemen of the highest respectability and integrity. The parties, with Mr. Carson, counsel for plaintiff (Louch), and M'Causland for defendant (Crawford), and *vice versa*, having retired with witnesses on both sides to the Grand Jury-room, Mr. Fitzgibbon Louch deposed as follows:—

Direct examination.—Is an architect resident in Derry for last five or six years; had conversation in latter end of 1859 with late Mr. Crawford about building; Mr. Crawford asked plaintiff's opinion as to best mode of laying out square; he had plans previously from Mr. Tait, of Edinburgh, and Mr. E. W. Godwin, architect; Mr. C. said plaintiff's ideas met his views best; asked his charges; plaintiff told him same; Mr. C. requested plaintiff to commit them to writing (letter of plaintiff, dated 4th November, 1859, stating same, produced. Objected to by defendant's counsel as not being evidence, it not having been signed). Plaintiff made survey of field (map produced); defendant gave great attention to the proposed works; plaintiff was engaged two days in surveying and levelling, a long time in making maps, in all matters seventeen weeks, during which he gave daily attendance; laid off ground in building lots; checked time and payments; excavations going on; plaintiff superintending same and other works during 18 months (plaintiff detailed the nature of the works referred to); plaintiff was there by late Mr. Crawford's directions; values services during seventeen weeks at £50; survey at £6 6s. extra; design for laying out a square, £30; staked out 84 lots valued in previous item; fourteen attendances on parties about to take lots charged 10s. 6d. each; total, £7 7s.; in June, 1860, was called on by late Mr. Crawford to design eleven of sixteen houses for north side of square (an elaborate drawing and coloured tracing of same produced); charged 30 guineas; believes same to be reasonable; in October, in same year, received instructions to prepare *working drawings* for four houses of the terrace; same since erected; gave detailed specifications to Mr. Crawford for carpentry and stone-cutter's work (drawings produced); estimated cost, £3,200; fees on same, 2½ per cent.—viz., £80, the usual professional charge; defendant was so satisfied with work that he stated plaintiff had saved him £200; resolved to carry on work by sub-contract; plaintiff would charge £5 per cent. for the extra trouble, and defendant contracted to pay same; plaintiff superintended erection, commenced in January, 1861; late Mr. Crawford died in May, 1861, and continued to superintend until that date, when plaintiff was superseded by the executor and defendant; about £600 had been expended; remuneration for same, £80; claims 2½ per cent. on what was not expended. (Claim for £800 for damages sustained by reason of dis-

missal, withdrawn.) The late Mr. Crawford was almost daily in attendance at the work in company with plaintiff; the foreman, Patrick Connor, was selected by Mr. Crawford, but was objected to by plaintiff as *not competent for first-class work*; plaintiff required a good carpenter, and would not be accountable for Connor's acts; still Connor was retained; plans set forth the proposed range of the houses; plaintiff staked out front line of houses, also the intersection, the rere walls, and stable lane; told foreman that the *front line of stakes was front of houses*; directed him to excavate, which took a considerable period, average depth, 9 feet; stones and rubbish accumulated, could not, therefore, eight stakes with facility; commenced in January, 1861; discovered on 8th or 10th of April, in consequence of observations by a Mr. Burgess, solicitor, about depth at rere, that a mistake had been made; plaintiff said it was 70 feet; went there with his pupil, Mr. Irwin; discovered the houses had been set back 10 feet, and were *not on the line of stakes*; Connor was there; plaintiff was very angry; Connor said *he thought the line of stakes represented line of area*; breadth of stable lane designed 17 feet 6 inches; depth from front to rere, 100 feet; depth of houses, 88 feet; areas, 10 feet; yard, 14 feet; an average of about 4 feet of building work was executed in *two houses and none in the other two* when mistake was discovered; to remedy mistake at that time *would not have cost £5!* plaintiff communicated next day the occurrence to late Mr. Crawford *how foreman (Connor) had made the mistake*; Mr. Crawford accompanied plaintiff, who pointed out mistake, and insisted *wall should be removed; Connor not present*; Mr. Crawford asked could it be remedied; plaintiff recommended him *either to remove the work, or to leave areas 5 feet wider*, as in consequence of excavation he had to put two steps on pathway, and the additional width suggested would *obviate that*; Mr. Crawford said *widen the area 5 feet, and reduce the lane from 16 feet 9 inches to 14 feet*; he having examined several stable lanes, and found that width sufficient, Mr. Crawford remarked that his meaning was in centre of gripe, and directed works to proceed, *as he would have no difficulty in getting the customary 6 feet* allowed him at other side of quick if he built a wall; after said interview, and up to the time of his death, Mr. Crawford visited works frequently; basements of the other two houses were built in conformity with *altered plan, to Mr. Crawford's knowledge, who never found fault*; Mr. Crawford directed Connor to build area wall; another mistake made by Connor, who *left out fire-places*. Returning to items in account, plaintiff, in answer, stated he let some of the premises by Mr. Crawford's directions, and claims £2 2s. for same, as agreed. (Other items admitted by defendant's counsel.) Plaintiff received no money whatever, except £28 18s. 1d., in respect of account furnished; used skill to best advantage; produced copy of specification; original given to Mr. Crawford; offered to prepare duplicate when latter got mislaid, but defendant refused access to plans; heard for first time of complaint about 27th September, 1861.

Cross-examination.—First business acquaintance with Mr. Crawford was in July, 1859, about survey of Gobnacle property; was paid for that in November following. (Plaintiff here explained items about Castlerock-house, and produced drawings and specifications.) Estimated outlay, £400; next the business in hands—viz., Crawford-square; charged £107; *per centage is not the scale adopted in such works*; plaintiff employed Mr. Milne, a landscape gardener, in April, 1860; Mr. Milne never complained of plaintiff's interference; *plaintiff put him away*; did not bring him back (letter of Milne here produced undertaking the carrying out of plaintiff's plan as foreman as long as he should continue to employ him); Milne went away in August; plaintiff or his brother certified for his weekly payments during most of that period; accounts at other dates not certified, but may have ordered payment of them *personally* after examining and noting them; believes the amount expended was about £300; estimates about three weeks' work for a draughtsman in making general elevation and tracing; the four houses built, and for which separate drawings are provided and charged for, are shown on that drawing; *plaintiff has been paid 7½ per cent. on outlay* when he had to superintend work *without a contractor*, the additional 2½ being added for *additional trouble* so incurred; furnished details, some on boards full size, as customary, others, such as trimmings, &c., fully detailed in specification; told Mr. A. Crawford, son of defendant, he had no "*complete*" copy of specification, but would furnish one if allowed the drawings; plaintiff furnished plans of four houses for working purposes; Connor was employed to superintend the works; Mr. Crawford reproved him for taking too much authority (plaintiff again explained the manner he had driven the stakes); was on ground every day, but owing to the heaps of stones could not see clearly the front line; if he struck out the line properly would expect the foreman to see the line preserved; did not say to Connor "*to say nothing about it, that he (plaintiff) would make it all right*;" the additional width of 5 feet was given to area, and Mr. Crawford admitted to plaintiff that he considered it a great improvement (map of property produced); map has been altered, but was right before erasures; by *scale* the dimension 88 feet 8 inches ought to be 84 feet 9 inches, but figures are attended to in preference;

was altered in his office, but *not* by his directions, to make it correspond with the ground; swears positively alterations were not made to blind Mr. Crawford, but to show the houses thrown back 10 feet, and the lane reduced; trench sunk inside foundation in a couple of days.

Henry Irwin (direct)—Is pupil of plaintiff, and substantially corroborates his statements.

Cross-examination—Plaintiff did not, in his hearing, say to Connor, "not to say anything about it."

Dr. Rogan—Is governor of lunatic asylum; had conversation with late Mr. Crawford, immediately before his last illness, with reference to the ground at other side of his mearing; said "*he would have room enough at rear of his houses when he got what he wanted.*"

W. J. Barre (direct)—Resides in Belfast; is an architect of ten or eleven years' experience; knows premises in question; heard plaintiff's evidence as to charges; made estimate as to what would be reasonable fees for the services rendered; charges according to time and labour for expenditure under £500 (here explained *minimum* charges for the various items in the account); gross amount, with reference to the surveys, maps, superintendence of roads, £57 15s.; general elevation of north side £20, taking the drawings on their own merits, and disconnected from the other works; deducted therefrom a proportion of one-fourth for the drawings, as would form basis for a contract, all details included, subsequently furnished for the four houses, and for which plaintiff is entitled to 2½ per cent., or £80 to £8,200; also if plaintiff was required to render the services stated by him, and which were over and above those usually required, £5 per cent. is reasonable for superintendence alone.

Cross-examination—Heard plaintiff speak about seventeen weeks' time expended, and estimated one item accordingly; if not so employed would certainly reduce it; cannot speak as to house agency fees, but *would not allow his time to be frittered away without payment if required to give information about lots, &c.*; heard plaintiff's statement as to details; does not think his proceeding correct; seeing the way the houses are executed, there must have been either total ignorance on part of foreman, or drawings are wanting; there should be details for various portions, they might have been furnished; wanting these, should deduct £10 from the £80 allowed, and if no specification, would value the charges at 1½ instead of at 2½ per cent.; thinks it possible an architect might not observe the mistake, and still be doing his duty, as he would naturally assume that the man in constant attendance would not deviate from the line of stakes fixed by him; if the stakes were before his eyes, cannot conceive why they were not discovered; it was duty of plaintiff to stake out main building, and the foreman should follow the drawings afterwards; if he received 7½ per cent., would consider it his duty to pay extra attention.

Redirect—Would not consider himself responsible for the mistake under the circumstances as regards the foreman, enumerated by plaintiff; it showed *extreme care on part of plaintiff* to stake off other walls besides the front wall; where back line was also staked, cannot conceive how mistake arose; no man that understood his business could have made the mistake that Connor did; wondered that plaintiff had anything to do with such a foreman; believes plaintiff should not be responsible for the act of an incompetent party.

[Plaintiff's and defendant's counsel here agreed to shorten the case by not producing more than one professional witness on either side, plaintiff consenting to withdraw Mr. Williamson, C.E., County Surveyor; Mr. J. J. Lyons, (Proprietor and Editor of the DUBLIN BUILDER); and Mr. J. G. Ferguson, of Derry, architects; and defendant, Mr. Sweeny, C.E., and Mr. Boyd, of Belfast, architect.]

Counsel then opened defendant's case, and dwelt on the exaggerated charges made by plaintiff, also on the damage sustained by the property by reason of the deviation, and which defendant claimed to be at the rate of some £7 per house for the sixteen houses designed and commenced.

J. M'Curdy (direct)—Is an architect; examined account furnished by plaintiff; would allow two days for surveying—viz., £6 6s. for map; and for design for laying out the square, £10 10s.; for remainder of works, such as superintending road-making, &c., 2½ per cent. on the expenditure of £300—viz., £7 10s.; map for lithograph £3 8s.; could not give an opinion as to the attendances, thinks it more house agent's duty than an architect's; as to charge of 17 weeks, does not think time should be computed; for general elevation of north side allows £10 10s.; 2½ per cent. is proper remuneration for drawings, including details, but without them 1½ per cent., as two of each class of house are duplicates; for superintendence alone 5 per cent. is not proper charge under any circumstances, but the total, including supply of plans also; heard of the mistake, and confesses he would feel himself responsible for it were he employed; considers that with the contracted *re-re* a loss of about £7 per annum at 12 years' purchase is incurred for each house of the range; lane could only be about 6 feet wide, or a barrow lane; increased width of area is £55 6s. extra cost for the four houses; arch, sustaining steps and landing, has become more slender, owing to being elongated.

Cross-examined—*It is not usual business of an architect to lay out grounds, superintend construction of roads, &c.; thinks 2½ per cent. is legitimate charge for such works; did not see the ground before the works were executed; understood that excavations had been made; does not consider plaintiff, as an architect, would be entitled to as much as Milne, the landscape gardener; if it took plaintiff's time one day in the week for 17 weeks, would give him 8 guineas per week; would say that he is only entitled to the usual superintendence fee if he went there twenty times a day; does know cases where architects were paid by per-centage on such works; was paid himself £7 10s. for half an hour each week for three months; if no contractor, plaintiff should have made special arrangement, or should get a guinea each time he inspected, in addition to 2½ per cent.; if acting as foreman, would strike off 2½ per cent. and give him salary of 2 guineas per week; cannot combine the two characters of architect and clerk of works; would not express opinion as to charges for attendances; plaintiff was acting professionally in staking front wall; thinks he (witness) would have discovered the error of the ground being thrown back 10 feet; would dislike the steps projecting in front; thinks areas too wide; would not leave upper landing so wide; the arches seem to be shaky; counted excavation in estimate of increased expense of constructing areas (quantities measured and priced by Mr. Boyd and checked by witness were here produced); would have rectified the mistake if permitted; if not, would leave as it was.*

Mr. Barre (recalled)—Heard Mr. M'Curdy's statement relative to the 55s. 6d. expended on the areas, and thinks it a desirable outlay, and improvement rather than otherwise; considers a narrow landing most objectionable, also projecting steps.

Dr. T. H. Babington—Attended late Mr. Crawford from 4th to 15th April; can say Mr. C. was not in Derry during that period, but may have come in on 16th.

John Milne (direct)—Is a landscape gardener; laid out cemetery in Derry, also Crawford-square; plaintiff spoke to him in April, 1860, and said he (plaintiff) wanted to know his charges; agreed to lay out the grounds according to a tracing; got no sections or levels, put up fence and hedge, drained the ground, &c.; was paid by Mr. C. at £2 2s. per week, whether men were working or not; plaintiff had nothing to do with laying out grounds; never complained to Mr. C. about plaintiff; gave up the work, because he considered he was insulted by plaintiff; went back and finished his work; some pay bills are certified by plaintiff and some are not, as witness went direct to Mr. C.; was not under plaintiff's control; laid out the roads, took levels, &c., himself.

Cross-examined—Was there 17 weeks; not as good a job as elsewhere; laid out central square and roads; executed drainage and planting; plaintiff said something he did not like; left him of own accord; was absent at flower-show at Enniskillen; plaintiff gave him instructions as to breadth of roads; never said plaintiff turned him away for being drunk; no man ever saw him so; witness, not plaintiff, kept the time of the men.

Patk. Connor (direct)—Commenced employment at Crawford-sq. in January, 1861, as foreman mason, for Mr. C.; his duty was to take charge of the men and the work; received plans from the architect, Mr. J.ouch; worked under his directions; wages 26s. per week; Mr. C. found materials; plaintiff proceeded to mark out excavations; brought three flag poles; measured from hedge to flag pole; drove down the stakes part of the way; plaintiff directed him to keep 8 ft. 10 in. from staked line for front wall; no other stakes laid down; plaintiff did not order to excavate 10 ft. outside line; nothing to prevent stakes from being seen; Mr. Burgess was first person saw mistake; he remarked narrowness at rear; witness said he thought it was all right; had all cuttings finished before he got a plan; plaintiff came up same evening, and Mr. Burgess spoke of space behind; measured it, and found he (plaintiff) made a mistake; asked witness to say nothing about it, but to add 4 feet to area; Mr. C. had not been there; saw Mr. C. in two or three days afterwards; on 8th May, before error was discovered, the walls of *all four* houses were 6 feet above level of bottom of foundation; would take *fifteen* masons a month to rebuild; was present when Mr. C. had conversation with plaintiff; plaintiff told him he was cutting away hedge, and Dr. Ogan prevented him; nothing said about mistake; Mr. C. was only twice on ground after that; made no remark.

Cross-examined—Has been long in late Mr. C.'s service; knew about mistake in week ending 3rd May; did not draw Mr. C.'s attention to mistake, as *plaintiff is a brother mason* (laughter); knows Mr. Irwin; he was not there; his evidence was false; not a stone laid on 10th April; false that plaintiff and Irwin went together at the time named; made no excuse in Irwin's presence for the mistake; had been engaged with stake line before; different architects have different systems; did not know that the stakes marked front wall, but understood it, as *expressed by plaintiff*, to mean the areas; had not seen plan at that time; saw grounds staked out before; at barracks, under Board of Ordnance; knew about building works and stake line, and if plaintiff had said nothing would have known it represented line of house; began to excavate in January;

no row of stakes or lockpits for the whole sixteen houses; only part—half the distance; they were there a couple of months; not there now; area line had to be extended out 4 feet beyond the pegs; houses stopped in June; about £200 expended to that period, exclusive of excavation.

Mr. Irwin recalled—Heard Connor's evidence; it is false; he said, "I thought you meant the front line of stakes for the area;" that occurred in April, sure it was not in May; foundation of two houses only commenced, and 2 feet above level of ground, when mistake was discovered.

Other witnesses followed on same side, but their evidence being comparatively unimportant, we refrain from giving it. After a short deliberation the jury found a verdict of one farthing damages in each case, which leaves each party in same position as he commenced, excepting the costs equally borne, and which are heavy.

WEEKLY RETURNS OF THE STATE OF THE PUBLIC HEALTH FOR DUBLIN, AS FOR LONDON UNDER THE NEW REGISTRATION SYSTEM.

By the 13th clause of Sir R. Peel's bill it is provided, that sometime during the year after the year to be reported upon, the Registrar-General is to transmit to the Lord Lieutenant a general abstract of the number of births and deaths registered, and this abstract is within one month afterwards to be presented to Parliament, if then sitting, but if not sitting, within one month after the commencement of the next session—that is to say, for the year 1863. The registrar's abstract should be prepared before the end of 1864, and be laid on the table of the House of Commons in the first week of the session 1865. *

Let that proposed scheme for the publication of these important returns be compared with the system now so long in force in England. For the metropolitan district of London weekly returns are made out and published within one week after the date they refer to. In these is given not only the gross mortality, but in detail the number of deaths in every parish, with the causes of death or disease classified under five great orders, and the proportion of each not only to the present total, but also to the mortality from that specific cause or disease in the corresponding week of the previous year. Next, for all England, within six months after the termination of every quarter, quarterly abstracts of the vital statistics—minutely analysed—are published from every parish, rural and civic, in the kingdom. Lastly, by the time, under Sir R. Peel's clause, our registrar should have only a "general abstract" prepared. The English registrar has on the table of the House his full report, being a complete collection, condensed with masterly skill, of all the facts and figures which illustrate the social, sanitary, and political condition of the country during the year reported upon.

To begin with, why should Dublin not have those weekly returns? Our newspapers very often publish the London mortality statistics, informing us whether typhus prevails more in Bermondsey than in Bethnal-green, and that diarrhoea has suddenly appeared in Lambeth. How much better if that space thus devoted could be given to the recording some of the sad figures which would represent briefly, solemnly, and effectually, the number of deaths by cesspools, by filth, by poison inhaled in the wretched haunts of our miserable brethren in the Liberties, and in the lanes, alleys, and courts elsewhere in the city.

The cost of the central staff for making out the return would be defrayed by Parliament; this is the imperial portion of the expense of the registration system. Every consideration then should lead us to urge this matter on public attention, and on that of our representatives in Parliament. We would ask, then, to demand complete justice to Ireland, in according to her every shilling of imperial aid she is entitled to, and what is yet more important, these weekly bulletins, as well as every precaution and measure found useful and necessary in England. There can be no justice to Ireland without the admission that the Irishman's health and life should be as fully protected as the Englishman or Scotchman.

Notes of New Works.

The Ulster Banking Company are about erecting a new bank-house at Trim; Mr. James Hamilton (of Glasgow and Belfast), is the architect.

The Directors of the Ulster Railway Company are about extending the goods station at Belfast, and have received tenders for that purpose.

The much needed improvements to the Omagh Lunatic Asylum have commenced; Mr. Richard Sherry, of Loughall, being the contractor, at about £6,000. New sewerage and water supply will be effected, and the day-rooms, infirmaries, dining-hall, kitchen, wash-house, laundry, offices, &c., are comprised in the alterations and additions. Mr. Boyd, of Belfast, is the architect; Mr. Munce, the clerk of works.

A new station is being erected at Cavan by the Midland Great Western Railway Company, and is far advanced towards completion; Mr. Wilkinson is the architect; Mr. Hague, the contractor.

The Hon. Judge Berwick is about improving his mansion, "St. Edmund-bury," near Lucan, according to plans by Mr. J. S. Butler, architect.

The General Inspector of Taxes in this city reports as follows, relative to its progress:—"Notwithstanding the depression of trade, consequent on a second deficient harvest, buildings and improvements continued to exhibit an increase in the city during the past year, deriving, perhaps, no inconsiderable impulse from the facilities afforded by steam mills for the manufacture of building materials. Eight of these mills are now at full work. In Prussia-street and Aughrim-street a very respectable class of houses has been erected, and dilapidated houses have been removed. That portion of Pill-lane adjoining the Four Courts is undergoing a considerable change by the removal of dilapidated houses to form an area to that edifice. The waste ground adjoining the railway terminus in Amiens-street, which, for a considerable period, bore so unsightly an appearance, is now enclosed with a substantial wall. I understand an extension of the buildings connected with the railway is in contemplation. Grafton-street, Nassau-street, and other leading streets are adding new and handsome buildings to many previously erected. Fordam's-alley, one of those localities inhabited by the most abandoned characters, is undergoing a very desirable change. The houses are now under repair, and the name is changed to Coombe street. In Braithwaite-street and that locality several dilapidated houses are to be removed, and new dwellings substituted. This object is about being accomplished by the great firm of Guinness and Son for the accommodation of the numerous work people in their employment. A decisive movement is now apparent, in a sanitary direction, intended to act on the dwellings of the poor situated in lanes and alleys. Few changes can be of greater importance, or have stronger claims on the approbation of the public. In one of my former reports I alluded to the advantage the city derived, and would be likely to derive, from railways and improvements in steam navigation, offering such inducements to visitors from all parts of the country, and the other side of the channel. It may not be an uninteresting illustration of the effect to mention that, in 1848, hotels and taverns numbered about eighty, but they are now above 200."

It is in contemplation by the commissioners and other inhabitants of Kingstown to build a town hall which would be suitable for lectures, concerts, reading-room, &c., and application will be made to the Board of Works for the necessary site on submitting a plan.

We are glad to see that notwithstanding the general depression of trade at present, the improvements in our city still continue to a reasonable extent. We noted some time since that Mr. Fakina, the extensive house painter and decorator, has just completed a new and handsome front to his house in Upper Sackville-street, from the designs of Mr. W. F. Calbeck, architect; but we may again refer to the fact, that he has introduced therein the novel and beautiful feature of crystal sashes on the street floor level, which, together with the plate and enamelled glass, carried up the full height of the two storeys, divided by ornamental pillars, and combined with the most unique patterns of gilt and decorated frames, with the various new rich designs in paper hangings, &c., displayed in the windows, give the entire a most brilliant and imposing appearance. These sashes are the manufacture of Messrs. Lloyd and Summerfield, of Birmingham (the patentees), for whom Messrs. Silthorpe and Son, of Cork-hill, are the local agents. We trust to see their more extensive adaptation, also that the improvement of our street architecture will continue in an equally meritorious spirit and character of design that distinguishes the new front in question.

CATHOLIC CHURCH BUILDING.

St. Mary's, Dingle.—The first stone of this church was laid on St. Patrick's day by the Right Rev. the Bishop of Kerry. The plan consists of a nave and chancel, terminating in a semicircular apse; side aisles; tower, with low pent-house roof and embattled parapet at west end of north aisle; north porch, and sacristy. The dimensions in clear are 136 feet 6 inches by 65 feet; the style, Early Pointed; Messrs. Aitken, Crosbie, and D. Cotter, contractors. Materials—sandstone for rubble, and limestone dressings.

St. Agatha, Glenflesk.—The foundation stone of this church was laid a few months ago by the Bishop of Kerry, and the works are carried forward rapidly by the contractor, Mr. George McDonnell. The plan comprises nave and chancel, north aisle, with sacristy at its eastern end, and a tower and baptistry at the west end, and a south porch. The upper part of tower terminates in an octagon. The east and west windows of chancel and nave are three lights; the south windows of nave and north windows of aisle, two lights. The dimensions in clear are 95 feet 6 inches by 40 feet. The style, Decorative Gothic.

St. Michael, Liscana, near Tralee.—The first stone of this church was laid by the bishop of the diocese on the 29th of September last.

It is in the Romanesque style, and comprises nave and chancel, with semi-circular apse, and aisles with sacristy. The dimensions interiorly are 88 feet 6 inches by 50 feet. The materials used are the limestone and marbles of the district; the contractors are the Messrs. Beardwood, of Dublin.

The M'Eniry Chantry, Tralee.—The interior fittings and decorations of the chantry, appropriated to the memory of the late respected and venerable Dean M'Eniry, are being carried out by Messrs. Hardiman and Co., of Dublin. They consist of an altar and reredos in Caen stone, alabaster and coloured marbles richly carved, a high tomb with recumbent effigy of Dean M'Eniry vested in canonicals, screens separating the chantry from the other parts of the church, rich encaustic tile pavement of floor, a group in bas-relief, illustrating one of the most characteristic scenes of the dean's daily labours, and various coloured decorations.

St. Mary, Newtownforbes, Co. Longford.—This church is being erected on a site liberally granted by the Right Hon. the Earl of Granard, K.S.P. The first stone was laid by the Lord Bishop of Ardagh on the 1st of May last; it is now nearly ready for roofing. The plan consists of nave and chancel, side aisles, and side chapel, and sacristy. The east windows are triplet of lancets; the windows of north and south aisles are couplets of lancets. There is no clerestory. A bell-cot surmounts the west gable. The clear dimensions are 97 feet 6 inches by 53 feet; Mr. Gardiner is the contractor. The materials used are rubble and limestone dressings.

St. Mary's, Kilronan, Keadue, Co. Roscommon.—This church is being erected near the ancient church of Kilronan, where lies interred the remains of Carolin, "the last of the Irish bards," on a site granted by the landlord, F. King Tension, Esq., Lord Lieutenant, Co. Roscommon, to whose, and Lady Louisa Tension's liberality the parishioners of Kilronan are indebted not only for the site, but for generous subscriptions to the funds. The plan comprises the usual arrangement of nave and chancel, aisles, side chapels, south porch, double bell-cots on west gable of nave. The style is Early Decorated Gothic. The west window of nave is of three lights, under a receding arch supporting the bell-cot. The east window of chancel is of three lights; the north and south windows of aisles are of two lights. The dimensions in clear are 100 feet by 53 feet 6 inches; the materials used in the walls are red sandstone, with white limestone dressings; the contractor is Mr. Barker. Mr. J. J. McCarthy, R.H.A., is architect to all the foregoing works.

It may also be mentioned here that to the pious care of Lady Louisa Tension is due the respect paid to the last earthly resting-place of Carolin. At her ladyship's cost the walls of the ancient church and chantry have been so far restored as to preserve them from possible future dilapidations, the cemetery enclosed with a suitable fence wall, and a picturesque Irish gate surmounted by a cross centred. Over the arch of the Irish gate is the following inscription:—"Within this churchyard lie the remains of Carolin, the last of the Irish bards, who departed this life March 25th, 1734. R.I.P."

House of the Immaculate Conception, Inchicore.—The first section of this building has been completed; it is 166 feet in length, 52 feet in depth, and three lofty storeys in height. It contains on the ground floor four large reception-rooms, principal and back stairs, refectory, library, sitting-rooms, temporary kitchen, hall and corridor, 12 feet in width, which traverses the entire building on all the floors; the upper storeys contain 82 bed-rooms, 16 by 14 feet, baths, &c. The exterior is finished with uncoursed ashlar of black stone, with white limestone quoins and dressings; the facade is divided into three compartments by a central recess. Though not strictly of any particular style, it may be said to partake of the Byzantine. The window openings are generally double and triple circular-headed lights, with recessed jambs; the centre is crowned by a deeply recessed and moulded eave. This building forms one side of the intended quadrangle, which will be completed by a contemplated church; Mr. John Bourke, architect.

Franciscan Church, Waterford.—Designs have been prepared by Mr. Bourke, architect, for enlarging and improving this church, by adding additional columns to the interior, and removing the present roof. A continuous entablature will be constructed over the present columns, from which will spring a lofty cylindrical pannelled ceiling, covering the nave; the aisles will have lofty segmental ceilings, with circular groins over the windows; an attic will be built over front pediment to conceal the additional height of roof.

At the Presentation Convent, George's-hill, extensive poor schools have been commenced. The building will contain besides the basement, four schools, 40 feet by 25 feet each, and 17 feet high, together with entrance hall, stone stairs, class-rooms, cloak-rooms, &c. The exterior will be plain faced with red brick; cost about £2,000. Similar schools are about being built in connection with Convent of Mercy, Athy; same architect.

Longford.—It is in contemplation to commence immediately in this town large national schools, together with a convent for Sisters of Mercy, and extensive convent schools adjoining the intended new diocesan seminary of St. Mel; preparations are being made to pro-

ceed with the erection of the latter building. The great campanile of the cathedral of St. Mel is approaching completion; same architect.

THE NEW CONVENT, KENMARE.

A CORRESPONDENT of the *Tralee Chronicle* describes this structure in the following eulogistic terms - to which we may add that Mr. D. W. Murphy of Bantry is the contractor, and the Bath stone was supplied from Messrs. Randell and Saunders' quarries:—

"The building, which, in point of architectural style and finish, is inferior to none in Ireland, and to the eye of the connoisseur is decidedly the chastest even in Kerry, where handsome convents abound, is of the mixed Gothic style, blended with the Elizabethan; and to our mind, though no *sacra* in architectural beauties, is a graceful relief to the sombre heaviness of the purer Gothic. The design by Mr. Hansom, who also designed the private church of Lord Castlerosse, shows a front with two returns; and with the schools, which are part of the main building, form three sides of a square, with courtyard to the rear and cloisters running all round. To the traveller or tourist entering Kenmare by the Killarney road, so famed for its command of scenic grandeur and effect, the *tout ensemble* is singularly striking, with full front direct in view, its light graceful belfry shooting high up in the form of a spire, and its several sharp-pointed gables—all completing an object charming in perspective and serving as a very creditable monument to the genius of the man whose creation it is. A noteworthy fact is, that in the execution of the work, for the first time, as we have heard, in Ireland, the English Bath stone has been substituted in the facings and dressings for the common lime-stone of the country; and the substitution has resulted in advantages which we have not time to detail, not the least being their easy and rapid manipulation with the plane and saw. It will serve to give an idea, better than we can convey, of the beauties of the new convent which harmonises so much of the useful and ornamental in so small a space, that this accomplished gentleman,* who has sojourned in Italy and travelled other lands—who is familiar with the *chefs d'œuvres* of architecture in these kingdoms, was struck with admiration of its beauties."

THE PROPOSED ALBERT MEMORIALS.

PROCEEDINGS OF THE MONTH.

The Lord Mayor of Dublin has received a letter from Robert Murray, Esq., the able representative of the Provincial Bank of Ireland, stating that the directors of that great establishment had voted £200 to the Prince Albert Memorial Fund.

At a meeting of the Dublin Committee held at the Mansion House on the 21st ult., several additional subscriptions were handed in. Amongst others one from the National Insurance Company for £50. The Hon. Secretaries laid before the committee an account of sums collected, which exceeds £2,000, exclusive of the funds in the hands of the county of Dublin Committee. They also further announced that they had received a communication from the County Dublin Committee, to the effect that a special meeting of that committee had been held on the 20th inst. A resolution had been unanimously adopted, to the effect—"That a most liberal and encouraging commencement having been made to the subscription list for an Irish memorial to the late lamented Prince Consort, we heartily recommend a junction of the County of Dublin Committee with that formed in the City, and a union of the funds also, in the hope that all Ireland may join to make the subscriptions worthy of the country."

A resident at Kingstown, near this city, desires at his own expense to erect a memorial to the late Prince, proposing to expend from £200 to £500 thereon. He only asks "for plans and suggestions from professional gentlemen. (Really it appears to us that when the gentleman went so far he ought, to use a vulgar phrase, have gone "the whole hog," and engaged an Architect, paying him for his services in the usual manner. Ed. D. B.)

The proposition of the Belfast Committee to erect a clock-tower at the foot of High-street in that town has given general satisfaction, and it is considered that the sum named, £3,000, will be sufficient for the purpose.

On Friday (week) afternoon a general meeting of members of the Society of Arts was held at their house in the Adelphi, in accordance with a requisition to the council "for the purpose of recording their sense of the loss of their president, the late Prince Consort, and of considering the propriety of having a memorial of his late Royal Highness in the society's house." Sir Thomas Phillips occupied the chair. Mr. Murchison moved the adoption of the recommendation of the council, that instead of erecting a separate memorial the society should lend its assistance in promoting the national memorial, which had received the sanction of her Majesty. He reminded the meeting that the society had already subscribed to the national memorial one thousand guineas, and he thought that they might better serve the object which they all have in view, which was the erection of a suitable memorial of his late Royal Highness by lending further aid to that undertaking than in the feeble effort

* The Rev. Dr. Anderson is here alluded to.

which they would be able themselves to make. Sir John Pakington considered that the society should have a memorial of their late President within the walls of the institution, and moved an amendment embodying this view. Sir F. Kelly seconded the amendment. Objections were raised by several members of the council, that the amendment as it was worded pledged the society as to the time at which effect should be given to the views of the right honorable baronet, which unnecessarily fettered the management. A long discussion ensued, and ultimately the original resolution was negatived, and the amendment having been altered, upon the suggestion of Alderman Salomons, by the insertion of the words "at a fitting time," was adopted.

As yet no stone has appeared to the Queen's Committee more suitable for the purpose of a monolithic obelisk in all respects than that which lies in a granite quarry of the Duke of Argyll, in the island of Mull, to which public reference has of late been made, though they have arrived at no decision on the subject, the prime object being to obtain a monolith which shall satisfy the condition on which her Majesty elected in favour of that form of monument, and which, with the artistic adjuncts that are contemplated as portions of the general design, shall be alike worthy of the country and the age, and best calculated to perpetuate the illustrious dead. They were informed yesterday (the 21st ult.) that since their last meeting workmen have been busily engaged in uncovering more of the stone at Mull than had been previously revealed, that they have now dug round one of the extremities, and that though the other one is still uncovered, this block of granite is now cleared to the length of 115 ft., or 8 ft. or 10 ft. longer than it was supposed to be. The committee were further informed that all practical men on the spot concurred in the belief that the stone is sound and perfect, but that no absolute opinion could be pronounced until it shall have been wholly detached and carefully sounded all round and throughout its entire length, which will be a work of time. A rough specimen broken from the block itself has been received in London, and is about to be polished, in order to a better judgment of its quality. Within the last few days a letter has been received from the proprietors of a granite quarry at Balmoral, stating that it contains a single stone about 100 feet in length, and nearly 50 feet broad. The letter was accompanied by a polished specimen, but the colour is not thought to be so agreeable as that of the Mull granite, while the cost of conveying it to the coast, it is said would be incalculably greater than that of removing the block at Mull, which is distant about five hundred yards from the sea. Some conception may be formed of the magnitude of the work now in contemplation from the fact that, in the partly analogous case of the Luxor in Paris, no less than five years and upwards elapsed in taking it down from its ancient site at Thebes, transporting it to France, and erecting it on the Place de la Concorde. The amount of subscriptions received at the Mansion House up to Friday evening, in aid of the Fund, is £42,000.

TESTIMONIALS AND MEMORIALS.

The testimonial presented to Mr. Charles Kean, F.S.A., at St. James' Hall, on Saturday week, in presence of a large assemblage of his admirers (the Chancellor of the Exchequer, in the unavoidable absence of the Duke of Newcastle, presiding), consists of various parts, of which the following is a description:—

A VASE IN OXYDISED SILVER.—The relief on the body contains portrait models of Mr. and Mrs. C. Kean, in the plays of "Lear," "Hamlet," "Henry IV," "Winter's Tale," "King John," "Richard the III.," "Much Ado," "Henry VIII.," "Merchant of Venice," with figures of Shakespeare, and Tragedy and Comedy. The neck is enriched with relief in medallion of Queens Elizabeth and Victoria. On the foot are elfin figures attendant on Queen Mab, supporting medallion portraits of Mr. and Mrs. Charles Kean. The pedestal contains views of Eton College from the River; the Eton Fete on the 4th of June; the School Yard; and the Inscription.

TWO CANDLABRAS FOR FIVE LIGHTS.—Upon the bases are portraits of Shakespeare, in low relief.

—o'er canopied with sweet woodbine,
With sweet musk roses and with eglantine."

The plynths are enriched with masks of Tragedy and Comedy in bold relief. The material, oxydised silver relieved by gilding.

FOUR DESERT STAMPS in oxydised silver, richly decorated, bearing severally on the base a subject in low relief from Shakespeare's plays of "Henry IV" (First Part), "The Merry Wives of Windsor," "As You Like It," "Twelfth Night," and on the stems, in separate shields, the monogram C.J.E.K.

TWO GROUPS in oxydised silver, the first illustrative of Shakespeare's "Midsummer Night's Dream," containing a portrait model of Miss Chapman as Oberon, with figures of Titania and Puck.

The second illustrative of Shakespeare's "Tempest," containing portrait of Mr. Charles Kean as Prospero, and of Mrs. Kean as Miranda, attended by Ariel.

INSCRIPTION.

"Presented to Charles John Kean, Esq., F.S.A., by many of his fellow Etolians, together with numerous friends and admirers among the public, as a tribute to the genius of a great actor, and in recognition of his unremitting efforts to improve the tone and elevate the character of the British stage."

The testimonial was designed, modelled, and portraits chased by H. H. Armistead. It was manufactured by Hunt and Roskell.

Mr. C. Kean, in acknowledgment of the compliments, expressed the profound gratification he felt at the manifest assurance which had reached him, that his endeavours to promote the best interests of the national drama had been approved of. If, he said, his attempt to revive the drama had been only supposed to please the eye, his motives had been greatly misunderstood, for his object had simply been through that gateway of knowledge, to reach the understandings of the people by whose patronage he was honoured. He referred pathetically to the days he had passed at Eton, by whose students, with him here, the memorial was originated, linking sweet memory with the past, and bringing him back to the time when the troubles of life had not commenced. He should look upon this splendid testimony as an emblem of his success now, and when he died as a memorial of his name. He thanked the subscribers on the part of his wife, who rejoiced not in her own but in her husband's honour.

The inhabitants of St. Mary's Parish, Irishtown, propose to place in the church a monument of the late Very Rev. Dr. Finn, P.P.

On Saturday week the memorial stone which was erected near the place where the late Mr. Braidwood, chief of the London Brigade, met his untimely fate, was uncovered to the public view. Dr. Cumming delivered an address on the occasion.

The subscriptions for the proposed memorial to the late Earl of Eglinton had reached, on the 24th ult., the sum of £6,523.

The latest Subscriptions to the Oliver Goldsmith Statue Fund are—Sergeant Armstrong, £2 2s.; the Lord Primate, £20; Judge Kelly, £2 2s.; William Hogg, Esq., £2; Rev. W. S. G. Guinness, £15; Alexander Thom, Esq., £2 2s.; G. F. Hudson, Esq., London, £5 5s.

The *Athenaeum* says our country towns are rapidly doing honour to their illustrious townsmen by erecting monuments to them. The other day we recorded that a statue of Sir H. Davy is to be erected at Penzance,—and now Paisley purposes perpetuating the memory of her townsman, Wilson, by putting up a statue of that eminent ornithologist in his native town. It will be in bronze, a little larger than life, and will represent him examining a bird that he has just shot. The statue, which is designed by Mr. Mossman, of Glasgow, will rest on a pedestal of Aberdeen granite, nine feet in height.

Our contemporary, the *Athenaeum*, has fallen into a laughable mistake, as in recording the proceedings at the recent meeting at the Mansion-house, Dublin, relative to the proposed Prince Consort Memorial, it says, "the treasurers were appointed, on the motion 'of a boy.' Master Brook, seconded by Mr. Hope, a centenarian." What will the proposer, Mr. Brooke, Master in Chancery (and of course designated Master Brooke), say to this? A little enquiry will convince our contemporary that "the boy" has passed his teens, and has arrived at "the sere and yellow leaf."

MANUFACTURE OF WOOD IN MASSACHUSETTS.—There are in Massachusetts 68 chair factories, 43 pail and tub factories, 28 piano-forte factories, 150 carriage and car factories, 1,894 saw-mills and 42 wooden ware factories, not included in the above, besides 448 steam and other mills, not otherwise enumerated. The amount of capital invested is about 2,500,000 dollars.

NOTICE.

The Proprietor requests that Advertisers and Subscribers for past year who have received accounts, also such of the latter as desire to favour by retention of their names on the list for current year, will please remit amounts to the Publisher, Mr. PETER ROE, 42, Mabbot-street, Dublin, in whose favour Money Orders should be made payable.

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NEAR STILLORGAN AND KINGSTOWN, CO. DUBLIN.

FOR DETACHED VILLAS this Property is chiefly intended. The RENT for PLOTS is exceedingly moderate; BEAUTIFUL SITES, with Sea and Mountain Views, and within a few minutes' walk of the Foxrock Railway Station, can be had at £10 the first Acre, and £7 for each additional Acre; BRICKS, LIME, SAND, and STONE, on the Property, are sold at reduced Rates to Tenants—the saving in Carriage thereby is an important additional advantage; the RAILWAY SUBSCRIPTION to Dublin is only £7 a year second class, and £9 first; the FOXROCK OMNIBUS and Stage Cars ply regularly to Kingstown, Kill of the Grange, Cabinteely, Glensageary, &c.; the FOXROCK MART supplies Drapery, Groceries, Provisions, and Meat, all of best description, at and UNDER LOWEST Dublin prices; a NEW CHURCH is to be built on the Property this year; a HOTEL is being erected near the new Railway Station; BUILDING LEASES FOR 900 YEARS are granted; in fine, nothing is wanted to promote progress, and secure to the Capitalist permanent and remunerative returns for Investment.

N.B.—Upwards of THIRTY THOUSAND POUNDS have been expended on this Property in Buildings, Roads, and other improvements, within the last Two Years. The Houses built are all Detached, and are from £500 each to £3,000 in value. Applications are daily increasing for Houses at Foxrock, of all sizes. Those finished are all most respectably occupied. Apply to

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66 and 67, THOMAS-STREET, has for sale—

Timber—	Fire Bricks,
Deals, St John's	Oven Tiles,
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Slates,	Pipes, all kinds,
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N. J. ANDERSON is discharging two Cargoes of Wyatt's best Bangor Queen Tons, Princesses, Dutchess, and Double Slates, which will be disposed of at lowest Cash Price.

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JOHN MARTIN and SON offer for Sale, on most reasonable terms, a large and well-selected stock of above goods. Strict attention paid to specifications, &c. North Wall, Dublin, March 15, 1862.

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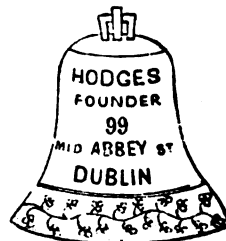
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The Dublin Builder.

VOL. IV.—No. 56.

TOWNS' SURVEY.—III.

LONDONDERRY.

WIELDING the consideration of magnitude, there is none other—with certain comparatively trifling and remedial exceptions—in which the "Maiden City" will suffer by comparison with any other city or town in Ireland. Nature has been peculiarly bountiful to her, and art too has, so far, fairly ministered to her luxuries, her necessities, and her adornment. Situated on the side of a hill, forming the western bank of the noble river Foyle—the village of Waterside occupying the corresponding shore—"Derry" (as for brevity we shall henceforth call her) when viewed from the summit of either, presents a charming bird's-eye sketch. The scenery along the river, as it widens and opens into Lough Foyle, thence discharging its waters into the broad Atlantic, is of surpassing beauty, facilities being afforded for its enjoyment by means of suitable steam vessels plying to and fro during certain months—a fact which we trust will be noted by such of our readers as meditate a tour northward during the coming season. By an antiquated timber structure, familiarly termed "the bridge"—and the *only* bridge at present—some 1070 feet long, access, both for vehicles and pedestrians, is obtained from shore to shore; but one of our first items of progress to record is, that this time-honoured and well-tried friend, "with trembling limbs," will soon be relieved from his burden, and his work be performed by a successor whose physical constitution will be more suitable thereto, and his general bearing more in accordance with "the spirit of the age." From the designs, and under the superintendence of the eminent engineer, Mr. Hawkshaw, a combined railway and street traffic bridge, of noteworthy architectural character is in course of erection, and from the difficulties naturally presented to the formation of piers in a deep river, will, when completed, deserve to be ranked amongst the important achievements of modern engineering science. Of this, however—with illustration accompanying—we shall have more to say hereafter. The present railway terminus is most inadequate, internally, to the traffic; and the elevation, which never was remarkable for good taste, "nods obeisance to mother earth," and will soon make her closer acquaintance if not removed. This, however, we are happy to record, is, together with other improvements in the vicinity, in contemplation. Considerable sums have been expended of late years in forming quays, but very much more requires to be done—and, we doubt not, will be, and speedily—before the accommodation is complete. At Waterside, which may fairly be regarded as part and parcel of Derry, signs of progress are manifest, some tasteful villas being recently completed from designs by Mr. Fitzgibbon Lough, architect, and numerous others about to be reared (as we learn) under same direction. Confining ourselves for a while to the immediate city of Derry, the municipal boundary of which comprises some 497 acres—the most attractive feature first to particularize is, of course, "the wall," of universal renown, and with which much historic interest is associated. This rampart, which is in a very perfect state of preservation, and spacious at top, extends about a mile in circumference, and is mounted with various specimens of the ancient cannon founder's art, rejoicing in the soubriquets of "Roaring Meg," "Long Tom," &c. &c.—now happily silent, but in former times proving rather troublesome customers, and still annually recreating themselves by a sham display of their capabilities in *memorian* of the siege in 1689. Connected with "the wall" are six gateways, of which Bishop's-gate and Shipquay-gate—at head and foot of two continuous streets bearing similar names, and forming the chief thoroughfare—are the most remarkable for their similarity to the ancient triple-arched structures of Roman fashion. The steep incline of the streets named—the latter especially—is, we presume, attended with some disadvantage and inconvenience, and a regret must also be expressed that the vista should be impeded by the ugly Town-hall that stands midway in "the Diamond"—a building we shall be glad to see soon replaced elsewhere by a better. The Cathedral, which is within the walls, and close by Bishop's-gate, is a venerable pile, but has not been improved externally by modern innovations; internally, however, the restoration was more successful, and at present important works of fitting and furnishing are, together with the removal of an obstructive gallery, being carried out under Messrs. Welland and Gillespie, architects, by Mr. James Henry, of Belfast, builder. A recent addition of a mural monument to the late gallant Captain Boyd is a feature of intense interest, and the design elicits

expressions of general approbation, but the omission of the word "Kingstown" from the inscription is a very awkward oversight. The particulars of this design we have before given. While here we must note that the ancient organ is also being repaired and fit for active service, by Messrs Telford, in this metropolis. The court-house is ill-arranged, but might be made more suitable by a small outlay, as it is a spacious and substantial building, mainly requiring only modification of the fittings in the apartments for Crown and Record purposes respectively. Of the other public buildings—inside the wall—there is little occasion for comment, except as regards "the Walker" monument—to the gallant Governor and Divine of siege celebrity—that for this or any purpose our previous antipathy to single tall columnar structures with a diminutive figure perched on its non-entablatured head was, in regard to this, fully confirmed; and further, that the "gaw-gaw" Record building erected sometime since by the Board of Works, is a glaring deformity, which might pass as a subject for a *chromolithograph*, but whose stern reality will not stand the test of the most impartial criticism. Outside the walls, and passing towards "the strand," we come upon a block of building in the Italian style, at the intersection of two streets, reared some time since by the Ulster Banking Company, under the direction of Mr. Jackson, of Belfast, architect, to whose tasteful design, therefore, much merit is due. For this, as well as various other works in the town and neighbourhood, Mr. McClelland, builder, who is also an extensive saw-mill proprietor, was the contractor. We hope the other Banking Companies who have branches here will follow the example of the enterprising "Ulster." A little further on, at Sackville-street, we see preliminary preparations making for another, but much more extensive, block of commercial houses, with highly ornamental fronts, Mr. Louch being the architect, and Mr. McGinley the builder. Within near approach of this point a very odd market entrance presents itself to view, but respecting the wholesome admonition, "*nil mortuis nisi bonum*," we say no more than to express a hope that both it and the equally fantastic church close by, erected under same authorship, will, sooner or later, be numbered with "the things that were." Mr. Raffles Brown, of whose work in "Galway" we had occasion recently to speak in eulogistic terms, has built a couple of good churches here also. The public establishment that holds its court in our Dublin Custom-house—and before alluded to—redeems itself in an architectural regard by the pretty Early English group of school buildings recently opened in this town, which reflect high credit on the designer as well as the contractor, and is a very desirable innovation on some of the previous "National Model" specimens. Ascending the heights we arrive at Crawford-square—the subject of the law case reported *in extenso* in our last publication—where the skeletons of four houses have been "run up," how?—we hardly wish to note; but, as the site is very commanding, we hope to see operations carried on, and the errors of the past avoided.

From this point there is a very commanding prospect of Waterside, the river, and a considerable part of the city; the tall spires of the Cathedral, and other churches, together with numerous factory chimney shafts, forming prominent objects. On an elevated and favoured site, close by, is the Magee College, a highly meritorious Gothic composition, from the design of Mr. Gribbon, architect; indeed, it may not be too much to say, that this building cannot be excelled in point of architectural beauty, externally, by any of its class in Ireland; an illustration is in the hands of our engraver, and will shortly be presented with full particulars. The Roman Catholic Cathedral, a spacious Gothic structure, is approaching completion, from designs, and under the superintendence of Mr. McCarthy, architect. We learn, however, that the original designs were prepared by a professional predecessor, and a large proportion of the shell erected under his directions; an explanation due to Mr. McCarthy, as grave errors in building the foundation seriously affect the stability of the structure—the tower especially, where the settlements are truly alarming; so much so that its sustaining itself for a lengthened period would almost seem questionable, not to speak of raising a lofty spire thereon—a certain physical impossibility. A little way outside the town is a neatly laid out cemetery, as yet not extensively occupied, but which, we trust, will obviate the necessity of further intramural interments, which have been too frequent.

Glancing at the town from a sanitary point of sight, Derry is not specially remarkable for its deficiency, but still much improvement is necessary in the neighbourhoods of Bishop's-gate—which Priest's-lane (the title, we presume, adopted without permission), a nest of filth and infamy, adjoins; also of Ferry-quay gate. The general character of the leading streets is remarkable for their English cleanliness—they are, moreover, fairly sewered, and well paved and lighted.

In the manufacture of shirts a vast trade is effected by several large establishments—that of Messrs. Tilly & Co employing as many as fifteen hundred females; others, a thousand and eight hundred respectively, besides numerous minor ones. With this, the main industrial element, we must draw this notice to a close, not however without adding a word of merited compliment to the good people of Derry themselves, with whom our brief acquaintance—perhaps to be renewed again—is fraught with pleasing reminiscences.

DESCRIPTION OF A FIFTY-TON CRANE AT BELFAST.*

THE crane about to be described is of the kind known as a rolling crane, and is built from the designs of George Smith, Esq., Engineer to the Belfast Harbour Commissioners—a somewhat similar one at Liverpool having served him as a rough model. It consists of a timber carriage mounted on sixteen wheels, running on four lines of rails, four wheels on each rail. At the outer end of the carriage are a pair of malleable iron jibs or shears, meeting together at the head, and supported by stays connected with the back end of the carriage. A pair of timber struts or spurs change the direction of the string in the stays, and form a portion of a system of bracing, giving steadiness to the whole. The hoisting gear is placed at the back end of the carriage, and a winch in the middle of the length of the carriage serves for traversing the crane backwards and forwards on the rails.

The site selected for placing the crane was on ground reclaimed from the Lough, and the soil being very soft required peculiar care in making the foundations. This was a part that came but little under my observation, but on my writing to Mr. Smith, he has kindly furnished me with the particulars. The length of the work at right angles with the quay front is 105 feet, and the breadth is 8 feet 6 inches for each pair of rails, the foundation for each railway being separate and distinct from the other, with a distance of 7 feet 4 inches between the stonework of the two. The ground in the first instance was excavated to a depth of about 6 feet for each line of foundation, and larrah piles, 35 feet long, driven in each excavation in three parallel lines. The heads of the piles were cut off level, at a depth of 5 feet 8 inches below the surface of the quay, and on the top of each, three piles were placed transversely a baulk of larch, 9 inches by 9 inches. On these baulks were laid longitudinal planks of red pine, 4 inches thick, on which was built a thickness of 3 feet 3 inches of rubble masonry. Resting on this rubble work, and under each rail, is a line of cut stone, 1 ft. 4 in. thick and 3 feet wide, on which the rails are fastened with oak trenails, the spaces between the stonework being filled in with the ordinary paving of the quay. The gauge of each railway is 5 ft., and the distance between the centres of two lines 15 ft. 10 in.

The carriage of the crane is of pitch pine, 60 ft. long and 19 ft. 6 in. wide. There are four longitudinal pieces extending the whole length of the carriage, and a fifth, a central one, which does not extend the entire length, being divided near the centre to give space for the traversing winch. These timbers are 14 in. square. The transverse timbers are eleven in number, all of them, with the exception of the end ones, being 14 in. by 9 in., placed under the longitudinal timbers, to which they are secured by two bolts, 1 in. diameter, at each joint; these timbers are half lapped into each other at every crossing at depth of 1 in. The end timbers are 14 in. square, and are fastened to the longitudinals by tenons and mortises. A pair of diagonal bolts, 2 in. diameter, with strong cast-iron washer plates, secures the whole framework from cross twisting.

The railway wheels are sixteen in number, 4 ft. in diameter, 7 in. wide at the rim, and are cast with solid discs, 2 in. thick; they run loose upon their axles, the naves being 10½ in. deep. The four front axles, those under the shears, having the greatest load to sustain, are 7 in. diameter in the body, and 5½ in. diameter in the naves of the wheel; the remaining four axles are 5½ in. in the body and 4½ in. in the wheels. All these axles are keyed fast in cast-iron brackets, bolted to the longitudinal timbers of the carriage.

The two transverse timbers of the carriage at the front end, and the portions of the longitudinals between them, are strengthened with additional pieces on the top, 10 in. deep, and on these are bolted a pair of strong castings, which carry the two shears or jibs and the two spurs. The length of the shears is 56 ft. 9 in. from centre to centre; the height of the centre of the head from the ground, 50 ft. 9 in., and they overhang clear of the carriage, 80 ft. 9 in. They are made of boiler plate, ½ inch thick, in ten lengths of plate, the external diameter at the ends being 20 in., and in the centre, 80 in. In constructing these, the plates after being bent to form, had the longitudinal edges planed, and were rivetted together with strips in the inside, 8 in. wide. The ends of each section were then turned in the lathe, and rivetted together, with internal rings, 8 in. wide, covering the joints. The joints throughout are double rivetted, and the rivets countersunk on the outside, making a perfectly fair external surface. The ends of the shears enter into cast-iron sockets, 2 in. thick and 2 ft. 1 in. deep, with a clear space of 5-16ths in. around, which was filled up with rust cement, when the sockets were properly adjusted. The lower sockets have rule joints cast on them, which enter between corresponding joints cast on the plates carrying the shears, the joint pins being 4 in. diameter; these pins, however, do not support the thrust of the shears, which is carried by the cylindrical portions of the rule joints, all the surfaces of which where they come into contact being accurately fitted together. As the shears are separated from each other a distance of

15 ft. 10 in., a strong tendency to spread at the foot is produced; this is not allowed to be communicated to the carriage, but is sustained by a tie-rod, 2½ in. diameter, connecting the pins of the joints together, the union being effected by sockets and cotters. The sheave heads are cast with the upper sockets, and have strong side flanges, which were faced in the planing machine, and when bolted together form the connections between the shears at the top.

The spurs are made of greenheart; their length between the centres is 86 ft. 8 in., their diameter at the middle 15 in., and at the ends 12 in. They are fitted with cast-iron sockets, similarly to the shears, and the lower sockets have also rule joints connected to the same plates as those of the shears. The upper sockets are not connected immediately together, like the shears, but are placed at a distance apart of 9 ft. 8 in. between their centres, and are joined by a tie-rod, 2½ in. diameter, with sockets and cotters, as described for the lower end of the shears.

A pair of tension-rods, 2½ in. diameter, connect the heads of the shears and spurs together, and two other pairs of tie-rods connect the spurs with the hinder end of the carriage. These sustain the shears in position. Two other smaller pairs of tension-rods radiate from the heads of the spurs to different points in the shears, and from these points rise bars of T-iron, with their upper ends connected to articulated joints in the main tension-rods. The pairs of T-iron struts are stiffened laterally with diagonal bracing, and diagonal tension-rods, placed also between the spurs, prevent lateral movement in them. It may be observed here that when the crane was first commenced upon, it was purposed to make the shears of timber, and the two pairs of tension-rods just described were essential in preventing the shears sinking in the middle by their own weight; but by substituting iron for timber in their construction, they were found to be so rigid, that it is probable these tension-rods might have been omitted without detriment to the stability of the structure. This would have materially simplified the work, as it was found that getting the pins through so many eyes at the top of the spurs was a difficult operation.

There are two sets of hoisting gear, the exact counterpart of each other. These are carried by three cheeks, bolted down to a cast-iron platform or sole at the back end of the carriage, the middle cheek being common to both sets of gear. The platform is 24 ft. long, 12 ft. 8 in. wide, and 1½ in. thick, and is cast in four pieces, with strengthening ribs on the under side. It has also three sets of transverse trusses underneath of malleable iron, which counteract the tendency to sink in the centre.

The hoisting barrels are 3 ft. 6 in. diameter and 4 ft. 10 in. long, and are cast with a spiral groove in each to receive the vertical links of the chain. The barrels are brushed with brass at the ends, and run loose on the shaft, which passes through both barrels, and serves also as a stay to connect the heads of the three cheeks together. The main spur wheels are keyed on to the outer ends of the barrels. The particulars of the hoisting gear are as follows:—

1st wheel, 8 ft. 4½ in. diam., 105 teeth, 3 in. pitch, 7 in. face, 6 in. shaft journals.					
1st pinion, 1 ft. 4½ in. "	17 "	8 in. "	7½ in. "	3 in. "	
2nd wheel, 5 ft. 1 in. "	90 "	2½ in. "	5 in. "	3 in. "	
2nd pinion, 8½ in. "	12 "	2½ in. "	5½ in. "	2½ in. "	
3rd wheel, 4 ft. 0½ in. "	87 "	1½ in. "	4 in. "	2½ in. "	
3rd pinion, 7½ in. "	13 "	1½ in. "	4½ in. "	2 in. "	

There are two of the pinions last in the table working into the third wheel, and they are provided with separate shafts and handles, the object being to enable a greater number of men to be employed in working the crane. The radius of the handles being 16 inches, the ratio of velocity between them and the barrels is 230 to 1, and as the blocks increase the power fourfold, the ratio between the initial and final velocities is 920 to 1. In cases where a quicker velocity is desirable, such as in taking up the slack of the chains, the handle can be put on the shaft of the second pinion, in which case the ratio of velocity is 138 to 1. There is a ratchet wheel and pawl on each of the shafts of the second wheel, by means of which either set of the hoisting gear can be used singly, or the whole fixed when required, but no brake is employed. The chains between the barrels and the head of the shears is supported on three pairs of friction pulleys, one pair of them carried by the spurs, and the others by the T-iron struts.

These pulleys are free to move on end on their respective shafts, in obedience to the lateral movement of the chains as it becomes coiled on the barrels. In tracing the course of the chains it will be seen that proceeding from one of the barrels, it passes over the friction pulleys and one of the sheaves of the jib, then under the travelling block,—over the gin block, and again under the travelling block, from thence it passes over the second sheave of the jib, and finally over the second set of friction pulleys to the second hoisting barrel. Thus it is obvious that 8 men employed at one of the sets of hoisting gear, can raise as great a weight as sixteen men working both sets, but require twice the time to raise the weight through any given height. On each side of the sole of the hoisting gear and resting on the frame of the carriage is a flooring of cast plates on which the men stand in working the crane. The sheaves of the jibs are 3 ft. diameter, and those of the blocks 2 ft. 2 in. diameter, they are all finished in the lathe, and are formed with a groove in each in

* Paper read by Mr. G. H. Stryke (member) at an ordinary general meeting of the Institution of Civil Engineers of Ireland, held on the 9th inst. in the new Museum Building, Trinity College, Dublin.

which the vertical links of the chain lie. This produces less strain in the chain in passing round the pulleys, than if they were formed with the groove wide enough to receive the chain bodily, at the same time the chain is effectively prevented from twisting. The hoisting chain is $1\frac{1}{4}$ in. diameter, short linked, and is 400 ft. long, it was proved to 22 tons, being equivalent to a load of 88 tons lifted.

The traversing gear is carried by two cheeks bolted to two baulks of timber secured to the transverse timbers of the carriage near the centre of its length, the middle longitudinal timber being cut away at this place to make room for the gear. The barrel is 16 in. diameter and 4 ft. 6 in. long, and its axle is carried by a pair of cast iron brackets bolted to the underside of the two baulks just named, the same bolts holding down the cheeks of the winels and securing these also. The chain is 5-8th in. diameter, and after making three or four coils round the barrel, the ends are fastened to two cast-iron leams bolted to the end stones of the foundation. The wheels of the traversing winels are as follow:—

1st wheel, 4 ft. 3 in. diam., 88 teeth, 1 1/2 in. pitch, 5 in. face, 2 1/2 in. shaft journals.	
1st pinion, 6 1/2 in. " 11 " 1 1/2 in. " 2 1/2 in. " 2 1/2 in. "	
2nd wheel, 4 ft. 3 1/2 in. " 108 " 1 1/2 in. " 2 1/2 in. " 2 1/2 in. "	
2nd pinion, 6 1/2 in. " 11 " 1 1/2 in. " 2 1/2 in. " 2 in. "	

The final ratio of velocities is therefore 136 to 1, and it was found that two men could readily traverse the crane to and fro with the load of 50 tons.

In calculating the strains to which the various parts of the crane is subjected in carrying its maximum load, we must first consider the weight of the shears themselves together with the parts immediately resting on them. This, when reduced to its equivalent effect, suspended by the chain is equal to 12 tons. Adding this amount to the 50 tons to be lifted, we have 62 tons as the greatest load to be sustained vertically, which resolves itself into a force of 107 tons acting in the direction of the axes of the shears. The smallest diameter of the shears is 20 inches externally and 19 inches internally, the sectional area consequently is $30\frac{1}{2}$ square inches, and $50\frac{1}{2}$ square inches by $80\frac{1}{2}$ square inches, equal to $1\frac{1}{2}$ tons per inch is the maximum compressive strain in them.

The experiments of Mr. Hodgkinson show the ultimate crushing strength of malleable iron columns such as these to be about 12 tons per inch of section, hence these shears, with the maximum load suspended are strained to about 1-7th of their ultimate strength.

The disposition of the blocks causes half the lifting weight to be sustained by the tension rods and the other half by the chains; but in addition to this the tension rods have the dead weight of the shears to support, the total being 25 by 12 = 37 tons acting vertically. The resultant of this in the direction of the tension rods is equivalent to 38 tons, or 19 tons on each rod. These rods are 2 1/2 inches diameter, or 5 inches sectional area, and 19-5ths, equal to 3-8 tons per square inch, or about 1-6th of the breaking strain.

In the act of lowering by the crane, that portion of the chain extending from the barrels to the shear head is relieved from a portion of the load equal to the friction of the various pulleys, and consequently the strain on the tension rods is increased by an equal amount. However, the surplus of strength possessed by the rods is amply sufficient to cover this, as well as any accidental jerk of a moderate character that may occur in using the crane.

Although the section of iron in these rods was thus evidently sufficient for the purpose, still as there were many welds in them, it was highly important that the soundness of the whole should be ensured before leaving the works. In the absence of any regularly constructed apparatus for this object, the following method of proving the bars was adopted:—The tubular portions of the shears having been completed, one of them served as the basis of operations. A strong cast iron disc was placed against the end of the tube, and a powerful screw, which happened to be on the premises, was passed through a hole in the centre of the disc, the nut of the screw resting in contact with the outside face of the disc. The portions of the tension rod about to be tested were placed inside the tube, one end being secured to the extremity of the tube farthest from the disc, and the other end of the rod connected to the screw by a piece of iron of a quality known to be capable of withstanding a tensional strain of 24 tons to the inch. When all the connections were made, the nut was turned round with a long lever until the given pieces of test iron was torn asunder, and as its area at the point intended to be broken was $1\frac{1}{4}$ inches, the rods were each subjected to a strain of about 36 tons, thus proving them to nearly twice the amount they have to bear with the maximum load.

In testing the crane when finished, a pile of rails weighing, with the chains that bound them together, 52 tons, was raised 15 feet high from the ground, and after traversing the crane several times backwards and forwards, the load was left suspended for six hours, the result was satisfactory in every respect.

The total weight of this crane is about 108 tons, of which 72 tons are cast-iron, 22 tons malleable iron, 2 1/2 cwt. brass and 14 tons timber. Messrs. John Rowan & Son were the contractors, by whom this crane was constructed, and the cost, including some trifling extras, was about £1650. The cost of the foundation was about £800.

[A diagram of this crane will appear in next No. of DUBLIN BUILDER.—Ed.]

DUBLIN LIBRARY SOCIETY.

THE second series of monthly evening meetings was held in the conversation room of this Institution, D'Olier-street, on Monday, the 14th inst. The Hon. Judge Longfield, LL.D., one of the Vice-Presidents, in the chair.

Dr. Millas read a paper on "The Ventilation of Coal Mines," with illustrations, and suggesting an improved system of double shafts. The author entered into an explanation of the cause of the Hartley Colliery accident, and the means by which such occurrence might in future be prevented.

Dr. J. M. Barry, in moving a vote of thanks, commented on the importance of ventilation, especially in relation to coal mines.

The next paper was read by Professor Glover, "On the Career and History of Handel."

Mr. B. Mulrenin, R.H.A., moved a vote of thanks, seconded by Mr. William Duggan, to the lecturer, for the able and lucid manner in which he had treated the subject.

The Hon. Judge Longfield LL.D., vacated the chair, and Mr. Charles Henry O'Neill having been called thereto, the thanks of the meeting were passed to the prior chairman for the great interest he had always evinced on behalf of the Society.

THE LATE SIR MARC ISAMBARD BRUNEL, C.E.

In a memoir recently published of this gentleman, Mr. R. Beamish, author, the following occurs:—"An anecdote is related of the young architect during his connexion with the theatre (New York), illustrative not only of his ingenuity, but of his love of a joke. At a grand public masquerade given to inaugurate the opening, an elegantly-constructed locomotive windmill made its appearance on the stage, the only apparent opening to which was a window near the top. The singularity of the construction excited, naturally, a surprise, which was increased to astonishment when a voice was heard to issue from the machine, uttering a variety of political as well as personal satires, and exhibiting an intimate acquaintance with the social condition of New York. This could not be long endured. A call was made for the *Thersites* of the mill to show himself, under a loud threat of summary chastisement by the demolition of the machine and the exposure of the *frondeur*. When the excitement was at its height, and the destruction of the windmill seemed inevitable, the machine was gradually brought over one of the trap-doors on the stage. Brunel, and the companion whose wit had led to the anticipated catastrophe, allowed themselves to drop gently through, and thus to effect their escape from the theatre undiscovered. The disappointment of those who had already breathed a vow of vengeance may be well conceived when the machine was found to be untenanted; and as Brunel and his friend left New York that night for Philadelphia, the mystery remained unexplained." . . . "This anticipation, derived from his thorough confidence in geometrical projection, reminds me of a similar instance which occurred at Deptford, where a large store had been just completed, which we had to pass in our walk. As we approached the building, Brunel hastened his steps, saying, 'Come along, come along; don't you see?' To my interrogation as to the cause of his alarm, his reply was, 'There! don't you see? It will fall!' What was about to happen was as palpable to his mind as if it had happened. He had observed the want of perpendicularity in the structure, and the conviction was as strong upon him that it could not stand, as if he had seen it fall. The next morning we learnt that the building was a ruin. In 1826 the application of cast-iron was receiving an unusual attention from engineers. Mr. Maudslay determined to exhibit his confidence in the material by erecting a roof over his factory in Lambeth. But so strong was Brunel impressed with the insecurity of any structure of the kind unless well combined with ties of wrought-iron, that when a rumour reached him on the morning of the 24th of May, 1826, that a serious accident had occurred at Maudslay's, he at once exclaimed, 'The roof! the roof has fallen!' And so it proved."

The North Strand Episcopal Chapel, with the boys and girls' schoolhouses attached thereto, are undergoing substantial repairs and improvements. Mr. John Butler, contractor.

The *Critic* says "the Royal Mausoleum, which, is to contain the tomb of Prince Albert, has been commenced by her Majesty the Queen laying the first stone in the presence of the Royal Family. The tomb itself is to bear upon it a recumbent statue of the late Prince, and this work has been entrusted to Baron Marochetti." From same source we learn that a statue of the late Mr. Locke, the well-known engineer, is proposed to be placed near those of Robert Stephenson and the younger Brunel—men with whom he was associated in constructing our principal lines of railway and other great national works. Lord Alfred Paget, who presided at the meeting held at the Institution of Civil Engineers last week, said that he believed if application were made to the Chief Commissioner of Woods and Forests, supported by the representatives of the Stephenson and Brunel Memorials, the proposed site would be granted.

SCULPTURE.*

Of all the fine arts which have form as their means of expression, sculpture is the most limited in its extent and material, its exhibition being confined to character and form. With these two specialities it must effect all we can desire—form, of course, being the vehicle for character. Difference of form gives difference of character. The human form is the highest, and, as such, the best medium for conveying the loftiest impressions of character, and is employed fitly to convey to our understanding the highest attributes of the Divine Being and of nature. The art of the ancients was as near perfection as it is possible to come, because it was conducted on principles now lost; principles which may be again restored and applied when the advanced state of society demands them. The art is at present, however, up to our power to appreciate it; anything beyond this would simply be regarded as an object of curiosity; for the highest degree of intelligence manifested in a work of art interests but the few, and these are not necessarily the learned, scientific, or literary, but kindred spirits, with or without those adventitious accompaniments. The circumstances most favourable to the development of art of the highest order, concurrent with science and learning, and mingled with our literature, institutions, political and religious, are such as exhibit themselves in a desire on the part of the masses to be acquainted with the beauties of these refining agents of civilization.

The fine arts exhibit the inventive power of man; they manifest themselves through three distinctive agents—form, colour, and sound. By these means certain fleeting graces of thought are rendered permanent and transmittable. A perfect imitation of a natural aspect is impossible, and if it were otherwise it would not be art. The fine arts deal with great abstract notions; things which have no sensible existence, but which belong to a higher and more exalted state of being, as equality, justice, goodness, wisdom, and beauty. Of these, beauty is entirely appropriated by the formative section of the fine arts; with this witching essence they captivate, whilst they inform us of all that the Creator has done for our enjoyment through the medium of form and colour. Beauty, then, is a principle in art. The artistic feeling is the power of creating agreeable emotions. The laws which govern or direct these are called æsthetics. Genius is the power to make new combinations out of existing materials, in imitation of nature, which is the operation of God's laws. They are both operations of the one all-powerful Being; the one continually making and in motion—genius evermore trying to fix its offspring. The fine arts alone minister to the soul; they combine to give all the soul is capable of enjoying whilst connected with the body, and, if found, to relieve it from the humiliating contemplation of its temporary associate. Fine art, as an abstract idea, can never be the subject of individual representation, and therefore perfection is an impossibility; and the extent of success in the pursuit is only the measure of individual capacity. But a soul was given to man; the fine arts alone minister to it; they are not appreciated by brutes or by brutal natures. Those who have no soul can live without them, but not so those whose souls are awakened to the consciousness of its high privileges; such beings demand, as with an appetite, the exercise of one or more of them; in the absence of this enjoyment life becomes a heavy, sorry business indeed, but the fine arts give us a foretaste of a happy future whilst we sojourn in this selfish world.

Necessity gives rise to style in kind and in degree; it is regulated by the conditions of the materials employed for its display; for instance, metal might exhibit parts and action which would be impossible to do in stone; in like manner, works in wood, plaster, clay, &c., present each special difficulties not to be met with in the others of the same kind and extent. To master any of those special modes will tax the ingenuity of the artist, and it is but fair to judge him by the degree of success attending his efforts. This is one clear reason why it is impossible to attain perfection in art. Moreover, any attempt to imitate one mode by the means proper to any of the others, results in defeat, and it then becomes inferior to that of its own proper mode, which had invention exhibited in its production. Statues were at first sculptured in wood, then of baked clay, after this metal was employed, but statuary in marble was of the latest period. Landmarks or terminal pillars were first used at places of assembly, such as market-places, &c. A knob or head was put to the pillar, and the human countenance, with a leafed cap (now known as the "wide-awake"), was soon added. In this we find the origin of statuary sculpture. When the terminal pillar was placed in the market ground, a purse was carried on the front of the pillar, to indicate the nature of the commercial transactions to those interested. After this we find a hand introduced, holding the bag or purse, and in process of time the sculptor's art completed the idea, by making the pillar into the figure of a man, with the symbols of traffic and dispatch proper to those who make a journey

to buy or to sell. The cap, feet, and staff have spread wings attached to them, to indicate speed in travelling, and sometimes a fleece or a ram is put at the feet of the statue. It is under these symbols, known as Manhood or Mercury, poets have called him a great cheat, significant of the kind of morals held by the commercial world—of course amongst the naughty heathens, who sacrificed the sire of the fleecy flock to Mercury, and so propitiated that attribute of commerce. What were called household gods were most common, and were made of wood or of metal, and sometimes of baked clay; but when sculpture attained its highest development, the most lofty sentiments were embodied, with a degree of skill unapproached in modern times; but when religion was to be served on a magnificent scale, sculpture was up to and surpassed the highest expectations, in its boldness, skill, taste, and profuse ornamentation. The Jupiter Olympus may be cited as an instance—the Minerva of the Parthenon as another—of the success attending their production. The art execution of the statues themselves being superior to the accompanying display of the gorgeous enrichments united, they were said to have no parallel in their magnificence. The sculptor's art was revealed in gold, ivory, silver, bronze, ebony, and precious stones.

The statue of Jupiter Olympus was sixty feet high, seated on a throne of ivory and ebony, inlaid with precious stones. This statue touched the roof of the temple with its head. The figure itself was of ivory and gold, with an enamelled crown of olive on the head, and an image of victory on the right hand, with a burnished sceptre in the left. The drapery and the sandals on the feet were embroidered with flowers, particularly lilies, and the figures of various animals. The Minerva of the Parthenon was 39 feet high; the naked parts of the figure were made of ivory, the drapery of gold, and the eyes of precious stones. There is a victory, four cubits high, in her hand; at the bottom of the spear lies a dragon, and carved on the base is the nativity of Pandora.

There are two subjects in connection with sculpture which have afforded some interesting discussions amongst the dilettanti, both lovers of art and artists—namely, on painting statuary in life colours, and on the most proper mode of treating sculpture if in action or repose. But good taste rejects coloured statues, either in wax or any other material; the abstract qualities of form and character are the only things sculpture as an art exists for. If sculpture were in natural colours we should then feel disappointed at its not moving also, for both belong to life. But a painting, though coloured, is not meant to deceive us, whilst statuary is fixed in position and gaze. The questionable taste which would have statues coloured objects, strangely enough, to the display of rapid muscular action in sculptural representation. This indeed would be absurd if the statues were coloured. But, says the critic, if the action exceed the tenth part of a second in duration, the action cannot be seen, and therefore it is impossible to represent it. So it would be if the art were limited to the specialty of limitation, but limitation is only a means of art. In action, however rapid, nature does not wait, but leaves it to the artist to reconcile us to the truthfulness of the representation of the action. This has been done with perfect success by the artists of antiquity, and the representation is as much of a real action as the material employed is living matter; and it is so far natural that the action has occurred as truly as that its representation lives; it is as much a real action as the form is real nature; both are alike, suggestive—and art is nothing more. On the other hand, certain critics object to any kind of action, and assert that the only state which is satisfactory in sculptural representations is sleep or death. Now, these conceits would be tolerable if we were found, when asleep or in death, that we became marble, or metal, wood, &c.

Alto-relievo is high relief, or figures nearly detached from their ground, and is little different from statue sculpture. Baso-relievo is low relief, and quite different, being more allied to painting; it is outlined on a smooth surface, and sunk to a certain depth or ground, as in carved mouldings.

Rome produced few or no artists; they were too much engaged in war. The Roman general, Mummius, is said to have filled Italy with the sculpture he carried away from Greece; yet it is thought their absence would scarcely be felt. Though Nero plundered Delphi of 500 statues, it has been calculated that more than 2,000 were still left. 8,000 statues were brought to Rome from Rhodes, and Mutianus carried away as many from Athens, and even more from Delphi and Olympia. The Greeks alone were the people who gave to statuary its high character as an art, capable of reaching the sublime and heroic without magnitude; they relieved it from the subordinate position as ornamentation or as symbols of state power; they alone cultivated and brought to perfection the high art of the sculptor. The career may be divided into five periods—namely, the primitive, ending with Phidias, 400 B.C.; the historic, ending with Alexander, 300 B.C.; the ideal, ending with Augustus; and the Greco-Roman, ending with Hadrian.

The education of the sculptor, after the manipulation of clay, the use of the chisel, and the capabilities of the several materials em-

* Substance of a lecture delivered at Mechanics' Institute, on Monday evening, 7th inst., by Mr. Henry M. Manus, R.E.A., Head Master, Royal Dublin Society's schools, &c.

played in the art, should, amongst other things, embrace the following:—Drawing, modelling, designing, plane and solid geometry, comparative anatomy, the laws of statics, equilibrium, balance and motion; the relative proportions of the human body, at all ages and of both sexes; the nature of drapery, and its use; light and shade; also the effect and the leading features of architecture, with its history, as well as that of sculpture and painting; ancient and modern universal history, and that part of its literature which relates to his art; national and local peculiarities in religion, policy, and the arts; and know pretty well what has been done before his own time; to distinguish between high and ornamental sculpture, with the artistic arrangement of proportional quantities in composition.

The fifteenth and sixteenth centuries produced some good sculptors, but none of the highest order; Donatello, Ghiberti, Cellini, Michael Angelo, and Bandinelli, alone make a respectable Italian school.

Gothic art in the main is simply ornamental, and takes its place as subordinate to architecture, which it enriches. Hindoo sculpture is pretty much the same, but more of decided symbolism, with this difference, that the art seems stereotyped; it is no better nor worse to-day than at the earliest period. The forms, though conventional, are of a pleasing type; with this form their founder passes through all conceivable shapes in nature and intelligences, and so carries us through all created thoughts and things. Of modern sculpture I must say that it is progressing, but its high price is a great hindrance to its success.

PROFESSOR SMIRKE'S LECTURES ON ARCHITECTURE AT THE ROYAL ACADEMY.—LECTURE II.

(Continued from page 79.)

Now that I am touching on the subject of illustrated manuscripts, I need not omit allusion to the remarkable book known as the "Codex Aureus." It forms part of the Royal Library collected by George III., and is certainly one of the gems of that collection. It has many claims on our attention, inasmuch as it appears to be beyond a doubt that it was executed for Charlemagne. It is enriched with magnificent illustrations, which may be fairly presumed to be specimens of the highest art which Europe in the beginning of the ninth century was capable of producing, and is, moreover, considering its great age, in excellent preservation. The prevailing character of the architectural features is manifestly what it is usual to designate as Romanesque. Each page represents one arch divided into three subordinate compartments by slender pillars carrying three arches. This arrangement of arches seems to have taken its rise somewhere about the period in the history of architecture with which this volume is contemporaneous: perhaps, indeed, even earlier.

The practice of building small arches in a continuous series, springing from the capitals of small pillars, bears a far earlier date. We find them in abundance at the Palace of Diocletian. Such small arcades occur, too, at the building near Ravenna called Theodoric's Palace, and a continuous range of them originally encircled the multi-angular tomb of that monarch. These small arcades, arranged in successive superimposed orders, came to be used to excess, as you, no doubt, will know, and covered the towers and gables of the Lombardic and subsequent ages. I may add that in paintings and mosaics of so early a date as the fourth century, represented in Seroux d'Agincourt's great work, these arcades abound.

But in the illustrations of a manuscript preserved in the Laurentian Library, at Florence, to which the date of the fourth century is assigned, a more distinct foreshadowing occurs of the Gothic mulioned window. It represents a large semicircular arch, comprising within its span four minor arches, thus dividing it into four narrow openings. It is true the head of the large comprising arch is blanked; there is shown on it a circle, probably decorative only, and not perforated; but the transition from this to an ordinary four-light Gothic window is easy and natural. In the "Codex Aureus," to which I have been referring, we have very plainly this germ of the Gothic window, and we have it even more distinctly developed in MSS. of the ninth century, of which representations are given by D'Agincourt. But not only were these small arcades the putative parents of mulioned windows; to them, also, it can hardly be doubted, we owe the triforium of our ecclesiastical architecture. I cannot refrain from here reminding you of the analogous use of these subordinate arcades in the Westminster Hall, as built by our William Rufus. In the twenty-sixth volume of the "Archæologia" you will find the representation of that triforium story forming an open arcaded passage-way, obtained in the thickness of the wall. This curious feature in the domestic architecture of the twelfth century I had the pleasure of being the first to explore and delineate, when the interior of the walls of Westminster Hall was opened out and exposed to view, under my brother Sir Robert's directions, with a view to the refacing of masonry of those walls in 1837.

I have, perhaps, detained you too long in thus tracing the pedigree of these mural arcades, but they are of some importance in the history of architecture. It may be difficult to point to any feature more

strongly characteristic of Mediæval architecture, or more definitely distinguishing it from strictly Classic art.

In the singular works of early Christian architecture to which I have been adverting it is impossible not at once to recognise a strong savour of Byzantine art. There is, for example, in the Codex Aureus an almost infinite variety of frets and friezes introduced of a quasi-Classic character, all most carefully and elaborately executed, and with a manual dexterity and precision which seem to imply great practice in such works. The Greek labyrinth fret occurs in utmost variety, and those interlacing patterns that stamp a peculiar character on the art of ornamental design in this Byzantine style occur in these illuminations in utmost profusion. Whether accompanying runic inscriptions in Ireland, in Norway, or elsewhere, or whether seen carved in stone in the earliest Christian buildings of Lombardy, or worked in mosaic on the walls of Greek churches, or depicted upon vellum in these beautiful manuscripts now under our consideration, there is a similarity of design and a general agreement in the manner of treatment which is certainly well worthy of observation. What adds especial interest to this curious kind of ornament is that it was not, apparently, derived from or suggested by any similar ornament in the preceding Classic school. Could it have been traced back to ancient Rome, we should not have been surprised at its occurrence in localities so widely apart, and in styles of design so widely differing; but nothing, as far as I know, occurs in Roman art from whence these intricate interlacings could have been derived—unless, indeed, we may suppose that the *guilloche* was the parent of this ornament, which would, in that case, take back the idea to Athens itself, and to how much remoter a period I know not. Even Assyrian art is not without traces of it.

Whether so derived, or whether it was the original product of a Teutonic or a Byzantine mind, certainly its wide prevalence is remarkable. It seems not unlikely that the facilities which these interlaced ornaments afforded of producing the device of a knot having no ends, would recommend it to the favour of the early Christian artists as an emblem of eternity, as well as of brotherhood. But whatever its origin, the idea was certainly most prolific. Besides being productive of a variety of mere ornaments, such as we see on this MS. of the time of Charlemagne, it suggests no doubt the monsters devouring their own tails, which we see so commonly portrayed in Mediæval sculpture; and the true lovers' knots depicted in a thousand familiar, although unmeaning shapes, on our walls and ceilings, down to the time of Elizabeth, and, for aught I know, to the present day.

That warns me that I must not now introduce to your notice any more of the literary and artistic treasures stored up in our magnificent national collection. I am well aware of the very superficial nature of these few slight notices: they present to you but the faintest glimpse of the almost endless stores that the liberality of the country has been enabled to accumulate under the guidance and with the assistance of her best scholars. In calling your attention to the few books which I named, I am, I fear, subjecting myself to the sarcasm of the old Greek author who tells us of a certain "Scholastic" who, being desirous of recommending a house to the favour of his friends, carried about with him a brick or two by way of specimen of the entire mansion. Yet scanty and very inadequate as the samples may be which I have this evening laid before you, I feel sanguine in the belief that my few remarks and criticisms will not have been made in vain, if they have produced in your mind a desire to seek for further satisfaction at the fountain-heads; to consult them for yourselves, and to liberalise and enlarge your studies by a wider field of investigation.

A careful contemplative study of the causes of the almost awful sublimity of the Coliseum, for example, is calculated perhaps to encourage and even to generate a greatness of manner, and to elevate the artistic tendencies of the mind; and to teach us that the grandest effects, in our art, are far more readily attainable by simple general forms than by resorting to that excessive elaboration and subdivision of details which (perhaps I may be permitted to say) is one of the least commendable tendencies of the present day, and against which it would be well that you should be on your guard.

Then, again, a critical examination of the interesting production of the age of the Renaissance in France—an examination so greatly facilitated by the two beautiful volumes of Catherine de Medicis, which I have been adverting to, is well calculated to fertilize the mind of a young architect, and to show to him how the combination of two very different kinds of beauty is capable, in the alembic of Genius, of being made to produce still another beauty—a *tertium quid*—differing very materially from its two components, yet partaking of the merits of both.

Such an examination would, furthermore, satisfy him that it was no mere love of innovation, no mere freak of fashion, that led our forefathers to lay aside in their architecture the stern and rigid air of Mediævalism. They abandoned mullions and tracery in their windows, and made them wide, and square, and open, not in sport and for the sake of a frivolous change, but because they were beginning to learn to appreciate more fully the value of light and air, and be-

cause they began to perceive that there were other means of excluding an enemy and securing their personal safety and an inviolate hearth besides loopholing and crenellating their dwellings. An inquiry into these great changes in their habits of building is a curious and not an unprofitable inquiry. It is common enough to hear it said that the revival of a taste for classical literature led to the study and subsequent adoption of classical architecture. Whereas the two revivals were, in truth, strictly contemporaneous; and it is by no means improbable that they may be regarded, not as one being consequent on the other, but that both were necessary results of a common cause—namely, the advance of civilization, involving the acquirement of new habits and new wants.

The other volumes of which I have this evening made mention have an antiquarian rather than a practical value, and to that extent are, no doubt, less suitable subjects for me to urge on your attention here. Yet those manuscripts are samples of a great store of similar works which our national Museum may be justly proud to possess, and which, whilst they are of the highest literary and historical value, must ever be precious also in the eyes of artists, inasmuch as the illuminations which adorn their pages represent faithfully the condition of the fine arts during the Mediæval period, and are, as it were, the golden link that connected the ancient with the modern schools of painting and design.

ON THE ESSENTIALS OF A HEALTHY DWELLING AND THE EXTENSION OF ITS BENEFITS TO THE LABOURING POPULATION.*

(Continued from page 77.)

THAT further legislative interference is indispensable to the remedying existing evils might be proved by abundant evidence. Excepting within the City of London,* and in the case of common lodging-houses, no power has yet been granted effectually to check the evil of overcrowding, in regard to which the medical officer of health in the City of London thus speaks:—"Without doubt it is the worst of all the unwholesome influences with which you have to deal; and until it is corrected you never will be secure from those outbursts of disease which appear to set your sanitary measures at defiance." A report made by the assistant commissioner of police on the condition of single rooms occupied by families in the metropolis without the precincts of the city authority, after giving in detail about forty most painfully-disgusting examples of overcrowding, says:—"It is evident, from these cases, which might be greatly multiplied, that all the evils which the Acts for regulating common lodging-houses were intended to remedy still exist, almost without abatement, in single-rooms occupied by families; single rooms so occupied being exempt from the operation of the Act." The causes are the avarice of owners and the poverty or debasement of occupants; and the only hope of improvement seems to be in some legislative enactment.

In regard to the *overcrowding of cottages* in country districts, I might remind you of the numerous letters on that subject which not long since appeared in the *Times*, and were but the echo of what has been said and proved so often elsewhere. It was with a view to obtain reliable statistical returns on this important subject that the then Secretary of State for the Home Department was memorialized eighteen months since, and urged by a deputation from the council of the National Association for Social Science, to take advantage of the recent Census for this purpose; but notwithstanding the unobjectionable character of the inquiry, and the ease with which it could be made, were fully admitted, the application proved fruitless.

After all that has been done within the last fifteen years by many proprietors in providing improved cottages on their estates, there are yet numbers who need to be made aware of facts which exist on their own property;† and there is reason to fear that with regard to others their obligations must be pressed home in such a way as they doubtless would be were the registrar-general enabled to instance flagrant cases of neglect, and to show what the results are by unquestionable facts. I cannot help, therefore, regarding the loss of this opportunity as a matter for very serious regret, especially when it is remembered how little the Government can do directly towards the domiciliary reform, so greatly needed amongst the masses of the population.

By legislative enactments can alone be prevented the recurrence of those hardships and other great evils which have arisen out of the selfish system pursued in some "close parishes," where cottages have been pulled down to obtain relief from a burthen which is thereby thrown upon a neighbouring parish, regardless of the sufferings endured by the labourer, who is often, as a consequence, compelled to walk several miles to and from his work. A calculation of the posi-

* The power referred to was conferred in 1851; and under the supervision of the able medical officer of health it is exercised with great benefit to the poor, as a diminution in the returns of mortality from 25 to 23 in 1,000, traceable to this and other sanitary measures, abundantly prove.

† A system of registration of the actual condition and extent of accommodation in existing cottages has been suggested by Dr. H. Acland, of Oxford, which, if generally adopted by proprietors, would, doubtless, elicit some very startling facts. Mr. Parker, of Oxford, will supply these forms of registration on the receipt of a postage stamp.

tive loss from the waste of valuable time and strength thus expended was made by the late Sir Robert Peel; and yet, how many who have labourers in their constant employ need to be convinced that it is as much as their interest to care for them in regard to their dwellings, as it is to provide well-situate, healthy, and convenient stables for their cattle?

The only other legislative measure which I shall point out as being especially needed is one that would operate generally to prevent the building of small houses on undrained ground, and without proper sanitary arrangements: such a fruitful source of sickness and consequent expense to the public ought, without doubt, to be entirely interdicted. It is an evil the extent or magnitude of which it would be difficult to estimate with accuracy.

As bearing on this, and several other points which have been referred to, I may quote the words used two years since by a right hon. gentleman, the present First Commissioner of Works—"As yet the necessity of protecting life from the influence of poisonous dwellings has not practically been acknowledged, though the principle is in the statute book."

It is unnecessary to occupy your time at any length with what has been done for the object under consideration by the governments of other countries. That of Belgium has been aided by the zealous efforts of M. Ducpetiaux; and in numerous other instances our example has been attentively watched, if not followed. In some of them the pleasure has been afforded me of tracing the results of my own labours in this cause, abroad as well as at home; rendered in the former case mainly through personal intercourse, and the circulation of translated papers.

2. In noticing the measures which ought to be adopted by *land-owners and employers generally* for the benefit of their dependants, such as tenants, or work-people in their constant employ, I feel that a quotation from the letter of the late Duke of Bedford, given at length in my former paper, is the best reply which can be made to the excuses of many for their neglect of duty in this respect:—"Cottage building, except to a cottage speculator, who exacts immoderate rents for scanty and defective habitations, is, we all know, a bad investment of money; but this is not the light in which such a subject should be viewed by landlords, from whom it is surely not too much to expect that whilst they are building and improving farm-houses, homesteads, and cattle-sheds, they will also build and improve dwellings for their labourers, in sufficient number to meet the improved and improving cultivation of the land. To improve the dwellings of the labouring classes, and afford them the means of greater cleanliness, health, and comfort in their own homes; to extend education, and thus raise the social and moral habits of those most valuable members of the community, are among the first duties, and ought to be among the truest pleasures, of every landlord.

The example which was set by his Grace in the building and improving the cottages on his estate in seven different counties involved, in the course of eight or ten years, an outlay of about £70,000. Another instance of princely expenditure on the same object is that of the Duke of Northumberland, which has been estimated at £100,000. The average cost of the cottages built by these two noblemen may be stated at from £90 to £120 each.

The question of a *remunerative return* on the outlay in building cottages in agricultural districts is one that impinges so closely on that of the rate of wages, that I shall not venture on its discussion. It would be hopeless to argue this point with those who think that wages from 8s. to 9s. per week can properly maintain a working man and his family, as well as pay the rent of a healthy dwelling. With the greatly increased prosperity of agriculture, such a rate of wages appears to me unaccountable, and altogether at variance with equity and sound policy.

The efforts made by some of our great manufacturers for the benefit of their work-people have been in proportion to those just noticed. Many owners of mines, quarries, and works of various kinds, can bear testimony to the great benefits resulting from their expenditure in providing proper dwellings for the people in their employ.

The same has been the case with reference to the cottages built in considerable numbers by several of the leading railway companies.* The secretaries of some of them, in speaking on the subject, have referred particularly to the great advantage of having the men ready at hand, in case of need, and removed from the temptation presented by public-houses. Government has acted on the same principle in regard to the police force; and, taking the idea originally from the model lodging-houses, barracks have been built, generally for those of them who are unmarried—a good precedent, which might, doubtless, be adopted in many other instances with much advantage to both employers and employed. In such cases a sufficiently remunerative rent can generally be charged, and its payment guaranteed by a deduction from the wages.

On the Continent our example has in this respect been much followed. At the Paris Exhibition, 1855, there were many views of

* The Great Northern has built 180 cottages at their station near Peterborough; and the Brighton Company has built and acquired nearly 400 cottages for their men.

workmen's dwellings erected by their employers. In two of them particularly, the leading features of the Prince Consort's Exhibition Model Houses were strongly marked. One, constructed in 1853 at Bourges, provides accommodation for four families on the ground-floor, and for twenty single men on the upper floor. The other is that of the Cité Ouvrière des Verriers, at Escoutpont, near Valenciennes, which comprises, in a central building, schools and other apartments used in common with some of the dwelling-houses; but the latter are chiefly contained in two detached blocks, forming the sides of a hollow square. In the buildings the frequent repetition of recessed entrances, with galleries to the upper floor, is, from the contrast of light and shade, productive of a novel and good effect.

I have visited dwellings for work-people built by their employers, in Brussels, at Liege, and at Mulhouse, one of the chief manufacturing places in France, where the idea of constructing a Cité Ouvrière originated in the receipt of a translation of my former lecture, sent by order of the Emperor. It was commenced in 1853 by an association, headed by M. Jean Dolfus, on a scale more extensive and complete than that of any similar establishment in France. A spacious road, planted on either side, runs between the main groups of cottages, and parallel roads run behind them. The houses are chiefly arranged in detached blocks of four dwellings each, placed in the centre of a square plot of garden-ground, which is divided equally between the tenants. Two of these dwellings front the main central road, and two the minor or back road,—an economical arrangement in regard to cost of construction, and one which admits of good internal ventilation, though not as perfect as when houses are built in pairs. The dwellings, though not precisely uniform in their disposition, have mostly a wide entrance, fitted up with a cooking-stove and sink. Beyond is a staircase leading to three bedrooms and a closet. The remainder of the ground-floor is devoted to the living room, with a large recess behind the staircase, of sufficient dimensions to contain a full-sized bed. This compartment has a side window; and, in some cases being partitioned off from the living-room, it forms a small separate room. There are, besides these, several rows of double houses, built back to back, each having a narrow strip of garden ground. Their arrangement cannot be commended as consistent with good ventilation; and the general appearance of the tenants indicated a decidedly inferior class of occupants, with want of cleanliness and propriety. In the summer of 1860 there were completed 480 houses, two-thirds of which had been sold to the occupiers; and 90 more were in the course of construction, land having been bought for 800 in the whole. Baths, a washhouse, and a bakehouse, as well as a public kitchen and restaurant, conducted by a Société Alimentaire, were opened when I visited the cité, in 1856; since which have been added a reading-room, a school, a lodging-house for unmarried men, and one for men on the tramp. * * *

The scope of my paper will only admit a passing remark with reference to Benefit Building Societies,* of which Mr. Tidd Pratt stated recently that there exist 2,000, with a paid up capital of £8,000,000. A machinery so extensive, and having such resources, might, if well directed, accomplish much for the object under consideration; but it is to be feared that many of the houses built in connexion with these societies are inconsistent with a healthy and convenient dwelling. This evil, which has been pointed out to me by the late eminent Dr. Southwood Smith, and other sanitary reformers, would probably be most effectually remedied by the circulation of sound views on the subject, through the medium of Mechanics' Institutions and kindred associations. Here is a fruitful field for individual effort, in the cultivation of which much assistance might be derived from the exhibition of suitable plans for the dwellings of working people, as well as from small collections of domestic appliances conducive to health and comfort.

The nucleus of such a collection was formed under my direction at the office of the Labourers' Friend Society more than twelve years since, and the idea was carried out on a very small scale in the Prince's Exhibition Model Houses, 1851, as well as in the compartment belonging to the Labourers' Friend Society in the Exhibition itself.

Experience having shown me the great necessity for a general diffusion of sanitary knowledge, I was led to follow up the declarative resolution, in regard to the establishment of illustrative museums, already referred to as having been adopted at the Congrès d'Hygiène in 1852, by proposing at the Congrès International de Bienfaisance, held in Brussels in 1856, the following resolution:—"The Congress declares that it is of public utility that the working classes be enlightened by all possible means in regard to the improvement and keeping of their houses in good order. It declares that the instruction of the young in the labouring classes ought to comprise all which relates to the benefits resulting from good ventilation, and the evils resulting from humidity. Lastly, it thinks that the study of the science of preserving health is one which ought to be

rendered accessible to all." The unanimous adoption of this resolution by the representatives of upwards of twenty different countries recognized the wide-spread extent of the ignorance referred to, as well as the serious nature of the evils resulting therefrom.

Scarcely any foreigners who visited the Exhibition of 1851 returned without examining the Prince's model houses; and but few left without carrying back to their several countries some of the publications bearing on the improvement of the dwellings of the labouring classes, which were there abundantly distributed. My own opportunities of judging of the effect of this little structure enable me to say that it gave to the movement an impulse such as it has not received from any other single effort, and the results of which have spread far and wide. The descriptive account of the building was translated into German at Berlin, and much of it also appeared in French.

The collection of sanitary and other appliances adapted to the circumstances of the working classes, which occupied part of the cottages, was the first public exhibition of the kind, and which I had hoped to see continued and increased, when, at the close of the Exhibition, the building was removed to Kennington Park, under the charge of the officer of the Woods and Forests; a proposal with that view having been made to the Chief Commissioner, Lord Seymour. The practical value of such a collection was recognized at the Congrès Général d'Hygiène, held in Brussels in 1852, where, on my proposal, "the utility of establishing in each country, and also in the principal centres of the population, a collection as complete as possible—a kind of museum where shall be gathered together models, plans, specimens of materials, &c., relating to hygienic amelioration and progress," was unanimously declared.

The Economical Museum, formed by my worthy friend Mr. Twining, at Twickenham, is an expansion of the same idea.

Amongst individual efforts for promoting the object under consideration, the prominence given to it as an object of vital importance in many public addresses by distinguished statesmen, ought not to be forgotten: those of Lord Palmerston have justly carried with them all the weight and high official influence of Prime Minister.

Within the last five years many ladies have directed their zealous efforts to objects which tend in various ways to domiciliary improvement. The Ladies Sanitary Association, the Female Domestic Mission, connected with Bible colportage, and meetings for the Instruction of Mothers, exercise a highly beneficial influence in this respect.

Notwithstanding, however, all our recent ameliorations, it is a well ascertained fact that tens of thousands of human lives are sacrificed annually in Great Britain through ignorance and the culpable neglect of means within our own power. But, owing to the noiseless and almost imperceptible way in which such multitudes are lost and homes desolated, we witness no manifestation of the practical sympathy so justly shown by the public, when, through some lamentable accident a score, or perhaps hundreds, are suddenly deprived of life, and their families of the means of subsistence. The misery and degradation in which vast masses of our fellow subjects are sunk, owing, in a great measure, to their domiciliary state, have been so often pointed at as a reproach to England, when I was recommending sanitary amelioration to influential persons on the Continent, that the words, "physician heal thyself" were frequently in my mind.

And now, in conclusion, if the remarks offered and the facts stated have tended to show that it is not through the exclusive adoption of any one of the means which have been pointed out, nor by any infallible specific, that the benefits of a healthy dwelling can be extended to all classes of the working population, I yet entertain a sanguine hope that through the general and earnest adoption of a combination of suitable measures, existing evils will be greatly mitigated, if not entirely rooted out. Such an expectation is warranted by the well-known results of the improvements in our prisons, which are no longer hotbeds of fever and of moral contagion as they formerly were; whilst the ameliorations very recently introduced in our military barracks and hospitals have led to a diminution by one-half in the mortality of their inmates, as was lately stated by the Chancellor of the Exchequer. Encouraging facts like these should stimulate all to exertion in their various spheres of action, in order that the labouring population may, to apply the words of His Royal Highness, the lamented Prince Consort, adopted in my motto, participate "in the blessings bestowed on us by the Almighty;" but which, in their case, "can only be realized in proportion to the help which we are prepared to render to them."

The Ulster Banking Company's premises in College-green have been opened for the transaction of business. The exterior is of unpretentious but suitable character, and the interior is remarkable both for the completeness of arrangement and for the excellent manner in which the fittings and other works have been executed by the contractor, Mr. James Freeman, under Mr. William Murray, architect. Total expenditure, about £2,000.

The splendid schools, founded at Hollywood, near Belfast, by Dr. Robert Sullivan, of the National Board, will shortly be opened under most favourable auspices.

* Those who may desire information as to the working of some of these societies will find an account of the origin and progress of four such associations, in Yorkshire, given in a paper read by Mr. J. A. Binns, at the Bradford Meeting for Social Science, and published in the Transactions of the National Association for 1859.

CROZIER MEMORIAL, BANBRIDGE.

OUR illustration for this number comprises a view of the memorial at present being erected by subscription, in Banbridge, to the late Captain Crozier, R.N., a native of the town. The committee instructed Mr. Joseph R. Kirk, R.H.A., to prepare a model of the figure, which being adopted, that eminent sculptor proceeded with the execution of the statue itself, which may still be seen at his studio in Jervis-street. For the pedestal, the design of Mr. W. J. Barra, of Belfast, architect, was selected from a number of others recently submitted in competition. Further particulars may be had by reference to page 15 of present vol.

A WORD FOR THE DUBLIN STONECUTTERS.

THE following is the substance of a letter addressed to us by the Regular Operative Stonecutters of this city, and which we give with pleasure, as it represents grievances suffered by that body, of which we trust the publication may serve to remedy even partially. As regards religious edifices, we must, speaking generally, freely admit, that it is too frequently the case that the tradesman's pocket is appealed to, and means—the result of his hard earnings—obtained therefrom, while his right to be a participator in any subsequent advantages is ignored, and preference given to others with less claim for consideration. This should *not* be:—

"The great evil our trade has to contend with is, that a large portion of our work is let off to country quarry-masters, who, in their turn, either let it by piece-work, or, if done by the day, they pay miserable wages, and the consequence is, the work is sent here about half done—in many cases unfit for use altogether. One, two, or more of our men are then employed to cure this bad work; and when this expense—coupled with the price of the half-done work—is made known, it is plain that the work becomes dearer on the parties who get it done, than if it was completely worked in this city, and particularly so as rough limestone can be brought into Dublin without waste, at very moderate prices, thereby affording remunerative profits. The system above complained of is, we understand, about to be carried on at John's-lane new chapel, while the funds in hand were raised by our subscriptions and those of other trades in the city. We therefore consider that we have a claim to the work of that building as far as our trade is concerned. Our men are doing what they can, with prudence, to obtain the work, and we have just now a sufficient compliment of hands competent to undertake any description of work in either lime or soft stone, and we are prepared to give every satisfaction to our employers."

DUBLIN CATTLE MARKET BILL.

THE opponents of this measure have issued the following cautionary notice, against signing the petition now being circulated in its favour; the reference to Smithfield Market—the state of which is on all hands admittedly disgraceful—seems, however, very like crying *peccatus* at the eleventh hour. Our own abstract opinion on the subject is, that there is quite room enough for the two markets, one for export, the other for local purposes. "The Public are informed that a Petition to the House of Lords in favour of the above Bill has been sent round for signature of the citizens, and that it has been signed by some without reading it, under the belief that its object is to abolish monopoly in Smithfield Market. The public should be made aware that the Corporation have, by resolution, and in their petition to Parliament, *pledged themselves, if this Bill be rejected, to enlarge and improve Smithfield so as to preclude the possibility of any exclusive privileges; but if the Bill be passed, a valuable property of the citizens near Smithfield will be ruined, and there will be inflicted on the city a Cattle Market on a site which a mass of the most respectable, competent, and disinterested testimony has pronounced to be the most inconvenient, ill chosen, and injudicious that could be selected. 'Smithfield monopoly' has been ingeniously adopted as a cry by the promoters of the Bill, but the citizens should be on their guard against being frightened by such a bugbear into sacrificing their property, and surrendering to private speculators the privileges of their legitimate representatives for the purpose of suiting the convenience or forwarding the interest of the Railway Companies, who alone can derive any benefit from the proposed New Market."*

WATER WORKS ARBITRATION.

MR. FISHBOURN, the arbitrator appointed under the water works act, sat yesterday in the City Hall, pursuant to adjournment, to take up cases in reference to the land required for the Stillorgan reservoir. The first case for hearing was that of the Messrs. Bentley. Mr. Smyth, law agent, and Mr. J. J. Byrne, valuator, were present; also Mr. Purcell, who appeared, instructed by Mr. Meldon, for the Messrs. Bentley. After some discussion, it was agreed to adjourn until May 21st. [The ratio of compensation for right of "water way" is still a *quæstio vexata*.—Ed.]

INSTITUTION OF CIVIL ENGINEERS OF IRELAND.

A GENERAL meeting of the members of this society was held on the evening of the 9th inst., in the Museum Building, Trinity College. Samuel Dowling, Esq., Professor of Engineering, in the chair. The minutes of the last meeting having been read and adopted, Mr. Blackistone was elected a member, and Mr. J. J. Lyons, architect (and proprietor and editor of the DUBLIN BUILDER), an associate. Mr. G. H. Strype (member) read a very interesting paper "On the construction of the 50-ton crane, Dunbar's Dock, Belfast," which we give elsewhere *in extenso*.

An interesting discussion took place on this subject, after which the meeting separated.

[We may here—appropriately perhaps—throw out a suggestion to the effect that as architects are eligible for admission as associates to the ranks of the Institution of Civil Engineers, and would both derive much pleasure and instruction from the proceedings of that body, as well as, probably, impart some to the members of a kindred science, the local practitioners, at least, should place themselves in nomination before the current session terminates.—Ed.]

ROYAL IRISH ACADEMY.

A GENERAL meeting was held last evening. Rev. Dr. Graves, President, in the chair.

The following were admitted members:—Mr. John Campbell, Mr. Andrew Armstrong, Mr. George Porte, and Mr. John Stratford Kirwan.

A paper by Dr. R. R. Madden was read, "On certain cromlechs found near Algiers."

Dr. Wilde eulogised the paper, and observed upon the fact that the cromlechs described somewhat resembled those found in Ireland.

An urn found near the cromlech was exhibited. A paper was read by Dr. Reeves on the island of Sonda. A conversation ensued, in which Dr. Wilde and Dr. Reeves took part.

ROYAL DUBLIN SOCIETY.

A GENERAL scientific meeting was held last evening, Dr. Barker in the chair.

Mr. J. Wonfor read a paper communicated by Mr. Pontifex and himself on "the quality of the milk sold in the poor and other districts of Dublin." He detailed the result of analyses made in the Museum of Irish Industry under the direction of Professor Galbraith on specimens of the milk supplied to consumers in various parts of the city. Samples, he said were obtained from Duke-street, Anne-street, and Sheriff-street. The object of the analyses was to ascertain whether the poor were worse supplied with this article than the richer classes, and the gratifying result was to show that they were not, the rich district of Rathmines being as badly supplied as Brabazon-street, whilst the best specimen was obtained from a very poor locality.

Dr. Henry Kennedy read a paper "On sleep in relation to the effects of night air." The conclusion which he drew from several propositions was that the habit of sleeping with bedroom windows open was, in this climate at least, never free from danger and should be given up. He alluded to the habit of persons shrouding themselves with curtains and "tucking themselves in." This was a habit, he said, under the most favourable circumstances, totally incompatible with vigorous health, and capable of engendering serious illness. He said his remarks applied in a special manner to Great Britain and Ireland, though he believed them to be applicable, though not in so marked a degree, to a great part of the habitable globe.

The Chairman was of opinion that it was essential to sleep with open windows.

Mr. James Haughton said the arguments of Doctor Kennedy against sleeping with open windows were not satisfactory to his mind.

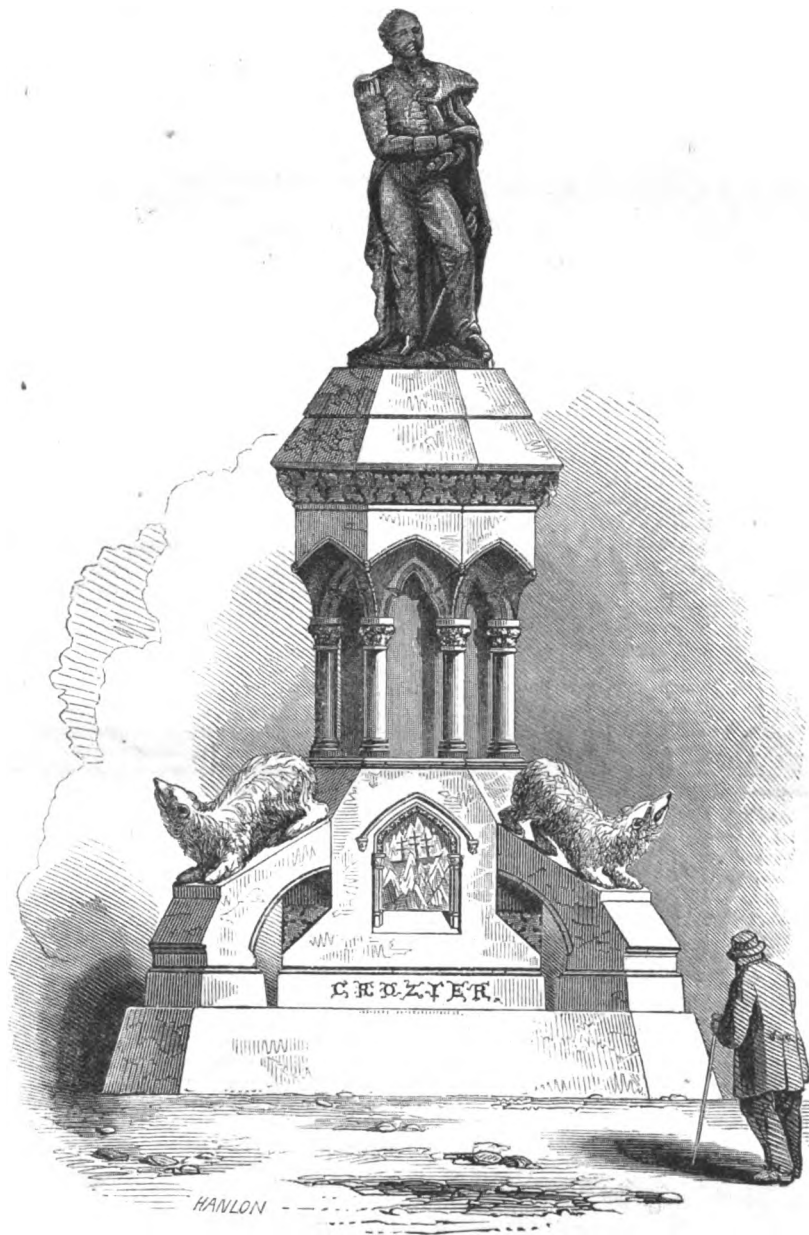
Mr. Hutton also expressed himself in favour of open windows and fresh air.

Dr. Kennedy said his paper had been somewhat misunderstood. There was a great difference, he said, between night air passed through a ventilator and air freely admitted into a room. Time did not permit him entering into the explanation he could give on the subject; his experience, however, was opposed to the general impression of the gentlemen who had spoken.

Dr. Cameron read a paper "On the inorganic constituents of plants."

ARBITRATION NOTE.

Farrell v. Cogan.—Claim for £623 odd by Mr. R. Farrell, builder, against Mr. Cogan, M.P., being an alleged balance due on foot of contract and extra works, in building defendant's house near Blesington; referred to Mr. William G. Murray, architect, by agreement of the parties and by order of Court, who, after hearing of evidence, awarded the sum of £268 odd, as the full balance due.



CROZIER MEMORIAL, BANBRIDGE.—MR. BARRE, ARCHITECT; MR. JOSEPH KIRK, R.H.A., SCULPTOR.

THE LIBRARY
OF THE
UNIVERSITY OF MICHIGAN

PHOTO-ZINCOGRAPHY—DOMESDAY BOOK.

THE publication by photo-zincography of the fac-simile of the ancient MS. which appeared in my report* for 1859, and of the detailed account of the process which I published in 1860 in a small pamphlet, with the notices which have appeared in the press, have spread throughout the world a knowledge of this art; and the publication last year of the fac-simile of that part of Domesday Book relating to Cornwall has given rise to a very generally expressed desire on the part of the gentlemen of almost every county in England for her Majesty's Government to allow the whole of Domesday Book to be published, county by county, in the same manner that the part relating to Cornwall has been. I therefore submitted for the approval of the Lords of her Majesty's Treasury a definite line of action to be followed with reference to the publication of this great national and inestimably valuable book, by which the public might be gratified, and at the same time her Majesty's Government not put to any expense thereby. I assumed that if any gentleman would guarantee to pay for 50 copies of any part, that would be a sufficient indication that least 250 copies will be required of that part, and having made a liberal estimate of the cost of producing 250 copies, the prices of the several parts were adjusted, and the gentlemen who made application for copies informed of it. Since then I have received applications and guarantees from the several counties. Domesday Book contains the great survey of England made by William the Conqueror, in which the name of the owner of every manor, and the quantity of meadow, pasture, wood, &c., in it, stated; and it is an interesting fact, and highly gratifying to me, to find that the art of photo-zincography, which we have discovered and applied for the purpose of making the detailed topographical plans of the kingdom, has led to my being able to produce at the same time the fac-simile of the most ancient survey of the kingdom, and which is such a document as no other country in the world possesses. The publication of the edition of Domesday Book in 1783, for which types had to be specially made, is said to have cost the Government £88,000, and copies of it are so expensive and so rare that few can either buy one or even refer to one, and the types were destroyed by a fire in 1808; but by adopting the arrangement of publishing the fac-simile of the work in parts, any one can purchase the part in which he is most particularly interested at a small cost, whilst the Government will not be put to any cost whatever. The value of photo-zincography is also felt in every topographical establishment; and at the request of the Secretary of State for India in Council we have recently instructed one non-commissioned officer and one sapper of her Majesty's Indian Engineers in this art, to qualify them to practise it in the office of the Surveyor-General of India. I have also received application from the Public Works Department in Canada for instructions to enable the director to introduce it there. A proposition is under consideration for sending a photographer from this office to Simancas in Spain, to copy some of the despatches in cypher which are deposited in the Royal Archives there, and which are supposed to relate to important events some time before and after the reign of Elizabeth. I have recently had some deeds copied by this process, and printed on parchment, to show that it is applicable for the purpose of making authentic copies of such documents as are required to be deposited in the Public Record Office. These copies were reduced to half the scale of the originals, the large clerical handwriting of the originals admitting of this with advantage, both for the facility of reading and keeping for reference. One of the principal officers of the Record Office informs me that he thinks this would save £10,000 a year in that department only. But we have recently discovered a method of producing a negative impression on paper, from which a single copy of a deed or other document can be printed on parchment in permanent ink, and thus we can avoid the necessity of transferring the negative copies to zinc or stone before printing. I have called this art Photo-papyrography, and think it will be found most useful for many purposes, and especially in those cases where a single copy of any document or only two or three copies are required.

NEW PATENTS.

List of Letters Patent which passed the Great Seal on the 21st, 25th, and 28th March, and 1st April, 1862; Messrs. Byrne and Lambert, agents, 4, Lower Ormond-quay, Dublin:—

W. Squire, for "Improved machinery for planing and shaping wood."

T. Newton, for "Improvements in sights in rifles."

H. Nunn, for "Improvements in mangles."

G. J. Gauier and E. E. Collett, for "Improvements in envelopes."

H. Willis, for "Improvements in the construction of organs."

Abraham English, for "Improvements in reins, or apparatus for preventing harnessed horses from falling."

T. Wild and T. Hodson, for "Certain improvements in the method of, and apparatus for, heating the 'feed water' for steam boilers, and in employing steam produced by such means."

* Extract from report of Col. Henry James, R.E., on the progress of the Ordnance Survey.

W. R. Rogers, for "An improved mode of constructing dovetail joints."

M. Hauff, for "Improvements in the manufacture of boxes and cases."

J. Brunt, for "Improvements in gas meters."

T. Smith, for "Improvements in the construction of umbrellas adapted for purposes of self-defence, some of which improvements are also applicable to other purposes."

W. Thompson and T. Stather, for "Improvements in hydraulic presses."

J. S. Collins, for "An improved apparatus for reefing and furling the sails of ships and other vessels."

F. Curtis, for "A new and useful improvement in firearms."

ENGINEERING ITEMS.

A New Furnace for Boilers.—Mr. G. Walcott, C.E., writing to *Athenaeum*, says "I desire to record a remarkable circumstance attending the supplying of furnaces with heated air, which has been hitherto unnoticed, or at least not made known;—it differs from the hot blast for smelting purposes. The heated air is obtained by keeping the ash-pit entirely closed, except when opened for removing ashes, and an arrangement for passing one or more streams of air from the back of a boiler bed, through separate passages in the solid brickwork, beneath the entire length of the lowest fire-flues, from thence into the ash pit and through the bars into the furnace. The result derived from this description of furnaces, when applied to heating gas-retort beds, may surprise your readers, who probably suppose it would occasion increased trouble with clinkers, the great object now being to check their forming by using evaporating pans in the ash-pit, which mode causes clinkers to become very hard, their removal often breaking the brickwork. Whereas, by thus totally reversing the usual mode, and drawing out the heat absorbed in the solid brickwork and that radiated from the floor of the furnace, and repassing it through the bars, clinkers are formed of so soft a nature as to be clearable from the bars with a rake. In fact, with one exception, firemen attending on these furnaces have told me they would sooner have charge of two altered furnaces than one of the common kind. I believe, when this becomes known and tried, it will be generally appreciated."

Iron Clad Vessels.—The recent naval engagement between the Federals and Confederates at Fortress Monroe, being the first on which these invulnerable monsters of warfare were brought into action, a few details of the construction of the two principal will be read with interest. "The spar deck of the Merrimac was 281 feet long and 52 feet broad in her original condition, and she drew 28 feet of water. She rated about 4,000 tons burthen. Her frame was of live oak, filled in solid, and caulked 14 feet out from the keelson. Forward the ship had 10 live oak breasthooks, fastened through and through with copper under the water and iron above; aft she had seven breasthooks. The engine was of 800 horse-power, with a two-bladed propeller 14 feet in diameter. The Merrimac was launched in 1856. Since then the Merrimac has been raised, placed upon the dry dock, and covered with an entire slanting roof of railroad iron. This additional weight nearly broke her down upon the dry dock, and they found almost as much difficulty in launching her as was found in launching the Great Eastern. Owing to a mistake in calculation, on being launched she was found to sink four feet deeper than before, so as to take in water. So she was again taken out, being hogged in the operation, and otherwise so strained that the Southern newspapers pronounced her a failure, and it is more than probable that with no opposition she would never dare go sea. She is probably a very good floating battery. Above the water's edge said to present nothing but her roof of railroad iron, with a smoke stack rising a few feet above it. From the accounts which we have of the fight, her rate of speed is very moderate. She mounted ten 100-pound Armstrong guns, which are reported to have mashed through iron mail as thick as that of Warrior and Black Prince, but which do not appear to have made any impression on the Monitor." The iron-clad floating battery, Monitor, was built in 100 days, to designs by Captain Ericsson. She is described as follows:—"Externally she presents to the fire of the enemy's guns a hull rising but about 18 in. above the water, and a sort of Martello tower, 20 feet in diameter, and 10 feet high. The smoke-stack during action is lowered into the hold, it being made with telescopic slides. The hull is sharp at both ends, the bow projecting and coming to a point at an angle of sixty degrees to the vertical line. It is flat-bottomed, 6 feet 6 inches in depth, 124 feet long, 84 feet wide at the top, and is built of light three-eighth inch iron. Another, or upper hull, rests on this with perpendicular sides and sharp ends, 5 feet high, 44 inches wide, 174 feet long, extending over the sides of the lower hull 3 feet 7 inches, and over each end 25 feet, thus serving as a protection to the propeller, rudder, and anchor. The sides of the upper hull are composed of an inner guard of iron, a wall of white oak 30 inches thick, covered with iron armour six inches thick. When in readiness for action, the lower hull is totally immersed, and the upper one is sunk

8 feet 6 inches, leaving only 18 inches above water. The interior is open to the bottom like a sloop, the deck, which is bomb-proof, coming flush with the top of the upper hull. No railing or bulwark of any kind appears above the deck, and the only things exposed are the turret and citadel, the wheel-house, and the box crowning the smoke-stack. The inclination of the lower hull is such that a ball, to strike it in any part, must pass through at least 25 feet of water, and then strike an inclined iron surface at an angle of about 10 degrees. In the event of the enemy boarding the battery they can do no harm, as the only entrance is at the top of the turret, or citadel, which cannot easily be scaled, and even then only one man at a time can descend into the hull. This turret is a revolving, bomb-proof fort, and mounts two 11-inch guns. It is protected by eight thicknesses of inch iron, overlapping, so that at no one spot is there more than one inch thickness of joint. A shell-proof flat roof, of perforated iron, placed on forged beams, inserted six inches down the cylinder, covers the top. The sliding hatch in this cover is perforated to give light, and for musketry fire in case the battery is boarded. A spur-wheel, 6½ inches in diameter, moved by a double cylinder engine, turns the turret, guns and all, a rod connected with the running gear of the engine enabling the gunner to control the aim. The guns move in forged-iron slides across the turret, the carriages being made to fit them accurately. These guns were finished with 400 wrought iron shot by the Novelty Works, each ball weighing 184 lbs. and costing 47 dols. The balls were made by forging square blocks of iron, which were afterwards turned in the lathe. Cast-iron shot would break against such a vessel as the *Merrimac*."

RAILWAY INTELLIGENCE.

The report of the directors of the Dublin and Kingstown Railway Company, presented on 25th ult. at thirtieth annual meeting of shareholders, shows that the available balance, including a balance of £2,279 11s. 2d. carried from the previous account, amounts to £16,628 17s. 3d.; out of this sum the board now declares, for the half-year ended 28th February last, a dividend on the capital stock of the company of 4½ per cent., free of income tax, amounting to £15,750, after which a balance of £878 17s. 3d. will remain to be carried to next statement.

The half-yearly meeting of the Midland Great Western Railway was held recently. The report shows an increase of revenue of £4,540, but, from the increase of expenditure, the margin over dividend was only about the same as last year—viz., £1,700 now, against £1,200 then. A dividend of 5 per cent., free of income tax, was declared, leaving to carry over £5,100. As, however, the amount carried over this time last year was £7,600, the earnings have fallen short of a 5 per cent. dividend by so much. It is, however only just to add that if the company had adopted the expedient of throwing the income tax on their proprietors, there would have been enough and to spare.

The part of the railway in progress between Boyle and Sligo is completed; but the middle length from Longford to Boyle will not be finished until the latter part of the summer.

The Clones and Cavan line presents another route between Dublin and Enniskillen, Omagh, Strabane, Derry, &c. It is the property of the Dundalk and Enniskillen Railway Company.

The Midland Great Western Railway is stretching its arms rapidly, and will, in the course of a few years, be a vast establishment, and provide facility of approach alike to the four provinces of Ireland. It is moreover excellently and spiritedly conducted—accidents being very rare, the officials civil and obliging, the carriage and station accommodation generally very superior, and the time-tables *unerringly* adhered to.

It is proposed to enable the Great Northern and Western of Ireland Railway Company to make a railway, length 20 miles 25 chains, from a junction at Manulla with their authorised Westport line to Ballina, in the county of Mayo, to be completed within five years, and for those purposes to raise further sums of £90,000 by new shares, and £45,000 by borrowing; with power for the Midland Great Western Railway of Ireland Company to subscribe for £30,000 of such new share capital, and for that purpose to apply their surplus funds, and to raise money by new ordinary shares in their own undertaking.

It is proposed to incorporate a company, under the title of "The Waterford and Passage Railway Company," and to empower them to construct a railway, commencing by a junction with the Waterford and Tramore Railway, about half a mile from Waterford, and terminating at Passage, on the western shore of Waterford harbour, a length of 8 miles and 7-8ths. The Lords Commissioners of the Admiralty give assent to the bill on condition that over the above-named distance no deviation seaward from the continuous centre line of way, shown on the deposited plan, be made without the previous sanction of their lordships; and that over the said distance, such crossings over, under, or on a level be made as the Admiralty may from time to time require, in order to give free access to and from the shore.

The railway bills under consideration of Parliament are, the Waterford and Passage, Waterford and Limerick and Limerick and Ennis, Great Southern and Western and Limerick and Castleconnell, Dundalk and Enniskillen, and Great Northern and Western.

The Bagnalstown and Wexford line has been opened for traffic.

We understand that this much desired line of railway (West Cork) is at length to be made, with all possible despatch, the government having consented to aid it liberally—as we always stated they would if properly approached. Sir John M'Neill has been named engineer-in-chief of this line, and the eminent firm of Moore, Brothers, have taken the contract, which is in itself a sure guarantee for its speedy completion.—*Cork Reporter*.

CONCERNING THE EXHIBITION.

A recent number of the *Critic* announces that the hanging of the pictures in the great gallery is proceeding under the superintendence of Mr. Redgrave, R.A., and Mr. Crewick, R.A., but as yet only a small portion of the collection is definitively fixed in position, and these pictures are chiefly the works of Sir Joshua Reynolds, whose *chef-d'œuvres* will be all exhibited; so that an immense amount of work remains to be done in the next five weeks. The light is pronounced perfect, and it will not be necessary to hang any picture higher than 20 feet from the floor. The pictures of the foreign artists are being hung by their own commissioners.

The London Correspondent of the *Belfast News-letter* says:—"The great International Exhibition will, I strongly suspect, prove a lamentable failure. I paid a visit to the building the other day, and was surprised, after the continuous puffs in the 'leading journal,' to find nothing but chaos and dirt. I am informed that the agents of the French, Belgian, and German governments have insisted (under the threat of removing their goods) upon enclosing the spaces or courts allotted to them. The result is that carpenters are now engaged in running up wooden partitions from the floor to the roof of the building! The effect of this will be to make the interior of the structure harmonise with the exterior, which is, without exception, the most intensely ugly creation of the human mind."

Artists and their productions have increased in number until the opportunities of exhibition are quite inadequate. This is especially the case in regard to the forthcoming International Exhibition. Although as much space is allowed to our own painters as to those of all foreign countries, it is not half enough to satisfy them, and many are the complaints that they will not be able to exhibit the varied and full range of talent that each thinks himself possessed of. This is no doubt a consequence of the determination of the advising committee to include the works of Hogarth, Reynolds, Gainsborough, Wilson, &c., instead of keeping to the productions of the present century; but our artists must not forget that foreigners are still more restricted than they are: for instance, if the French and the Belgians attempt to fill the small space allotted to them with their crushing battle-pieces, they will have no room for their more delicate and highly-finished easel pictures.

Among the goods to be sent to the Great Exhibition from the island of Dominica, in the West Indies, are 170 distinct varieties of woods of native growth, chiefly hard woods, and many of them bearing an exquisite polish.

The official notice states guarantors and others invited to be present at the ceremony of opening the International Exhibition, on the first of May, have the option of appearing in uniform, official, or court dress, or in private morning dress, and that ladies will appear in morning dress, and will not be separated from the gentlemen by whom they are accompanied.

From the London *Daily Telegraph*, of 31st ult., we extract the following:—"To-day the passage of carts at the central entrance will, according to printed announcements on the walls of the building, be closed; and we are informed that the whole of the space will be boarded over before to-morrow evening. Meanwhile a deep, square well has been sunk, and bricked at the sides, for the pendulum of Mr. Benson's great clock to swing in; and at each corner of this shaft, some few feet removed, is a solid piece of groundwork for the support of the huge piece of mechanism, which will rest on iron columns. The upper portions of the same work, separated by the picture-gallery and by a considerable height above, are going on well. There is an opening in the roof of the upper chamber, appropriated to photography, through which on Saturday might have been witnessed the operation of fixing the dial. This object, which has been executed in Magnus's enamelled slate, from designs furnished at the South Kensington School of Art, measures upwards of nine feet in diameter. The scaffolding at present hides it from view without; but this obstacle is in course of removal, and the effect will shortly be seen. The mechanical communication between the exterior dial and the works of the clock, in the very heart of the building, is a triumph of ingenuity. Though the rods and pulleys will all have to be carried over a glass roof, they will scarcely be discernible from the framework which they will traverse. While observing the progress of the clock front from the photographic gallery,

we may mention that this apartment is being rapidly prepared for its purpose, and that signs are not wanting of attractions which will possibly overcome the disadvantageous position of this department, located, as it is, at the summit of a formidable ascent."

Many side courts of the Great Exhibition are now getting up their partitions, and draping them with hangings of various colours, so that even now the glowing tints come out strongly, and give an idea of the grand effect the whole will have when finished. The English side of the nave is already half full of trophies, but in these as in other matters the foreigners are very backward. Somewhere in the English part of the nave the Koh-i-noor is to be fixed. This great jewel is exhibited by her Majesty, who also sends a fine collection of rough rubies from Lahore, a silver table fountain by Garrard, and some fine silver vases of Vetches, manufactured by Hunt and Roskell. Her Majesty has also consented that her magnificent dessert service, which during the last two or three years has been in course of manufacture at the Worcester Porcelain Works, may be shown by Messrs Kerr and Binns, the manufacturers. This work, which, it is said, has eclipsed the very finest specimens of the kind that Sevres, Dresden, or Vienna has yet produced, will be shown by itself as a trophy in the nave, and in the porcelain world the liveliest interest is evinced to learn with what feelings foreigners will regard this grand service, and Minton's fountain, our two great *chef d'œuvre* of ceramic manufacture. The objects included in class 15, which contains horological instruments, will be found extremely interesting. In this class all the great watch and clock manufacturers of England will show their masterpieces of workmanship. There will be reversible chronometers, steam clocks, marine chronometers, astronomical clocks, geographical clocks, silent clocks, skeleton clocks, Lilliputian alarm clocks, electro-magnetic clocks, keyless watches, electric clocks, mercurial timepieces, clocks showing mean time and longitude at important places, with galvanic-magnetic clocks, and gold and silver watches of every description.

FOREIGN NOTES.

The special correspondent of the *Agricultural Review* writing from Australia says, the absorbing question of the day is the want of population. The countless acres of Victoria are lying waste, languishing for industrial hands to occupy and work them. The statistics of emigration in the colony for the past year present rather a startling statement. Notwithstanding the thousands who have monthly left the British shores for Victoria, it appears that there is but an increase in favour of the colony of but 369. This is attributable to the rush to the recently discovered gold fields in New Zealand. But of Melbourne he says "Its present state can be faithfully characterised as most hopeful and encouraging. Provisions are abundant and cheap, the people are well fed, well housed, well clad, and generally speaking most contented. Wages continue much the same, notwithstanding the great decrease in the price of provisions and general requisites. Rents run a little too high still, but are gradually on the decline; female domestic servants are in great request, and command from £30 to £40 a year."

Letters from Alexandria to the 4th instant, state that the works for the cutting of the Isthmus of Suez are carried on with great activity. At Elguez several thousand workmen are employed, M. de Lesseps bivouacking amongst them.

A piece of building ground belonging to the Archduke Albert, and situate just outside the Karntner-gate of Vienna, hard by the Opera-house, and where the ramparts stood, was sold last week in seven lots, at fabulous prices, realising altogether 944,600 florins, 239,000 florins above the valuation. One favourite lot of 285 square klafter (a measure of six feet), valued at 500 florins the klafter, sold at 755 florins. All the purchasers were bankers, merchants, or manufacturers. The houses to be built on this ground will cost, it is said, at a rough valuation, from 7,000,000fl. to 8,000,000fl., and will be complete and habitable, it is expected, within two years.

The French Minister of State has decided that a marble bust of M. Halevy shall be placed in the great hall of the Institute, between those of Mehul and Gretry.

A new French Secretaryship of State is about to be created for the exclusive management and superintendence of railway companies. It is said that M. Didion, the manager of the Orleans Company, will have the first offer of this post.

The gorgeous Cathedral in the city of Mexico is the largest structure on the American Continent. It is 500 feet long, 420 feet wide, and capable of holding 80,000 persons. The high altar, raised from the floor on an elevated platform, exhibits a profusion of candlesticks, crosses and other ornaments of solid gold and silver, decked in jewels estimated at the value of more than 2,500,000 dols.; and all parts of the church are a perfect wilderness of columns, statues, shrines, fronts, &c., &c.

Some very remarkable tapestries, discovered recently at Turin by the Marquis d'Azeglio, Italian Minister in London, will shortly be brought over, and will probably figure at the South Kensington Museum.

The Emperor of France has decided upon converting the old chateau of St. Germain, once the habitation of the exiled monarch of England, James II., into a museum, which is to contain all the remains of the Gallic period at various times found in France; and a series of antiquities down to the middle ages, where, archæologically speaking, the Hotel de Cluny commences, is to be brought together.

M. Casselli's electric telegraph, according to the Italian papers, is working successfully between Florence and Leghorn. Its peculiar merits consists in its transmitting autographic messages, thereby avoiding all risk of error. The inventor has given it the name of Pantagraph, and purposes, we understand, exhibiting the apparatus in the Philosophical Department of the International Exhibition.

GENERAL NEWS.

Since the day the new bankruptcy act came into operation—namely, the 12th October, 1861, more than 390 petitions have been allotted to each of the five London commissioners, making a total of nearly 2,000 in little more than five months. The result is that, during these five months, more than double the amount of business has come before the courts than was transacted during the whole of the year preceding the new act.

The spring exhibition of the Royal Horticultural Society of Ireland will be held in the Rotundo rooms and gardens, on Thursday, the 24th inst.

The *Delhi Gazette* reports that the holy city of El Islam, Mekka, was visited by unusually heavy rains. Five hundred houses had been washed away, and the loss of life and property was enormous. The water rose 10 feet above the door of the Kaaba, in which 60 worshippers were drowned. The valuable library of ancient MSS. had been destroyed.

The Madrid journals state that the fine old castle of Segovia was destroyed by fire on the 7th ult. The castle was used as a training college for cadets of the Royal Artillery, and the magnificent library of the college, consisting of 12,000 volumes, has been completely destroyed.

The Imperial Zoological and Acclimatisation Societies of Paris resolved at their last meeting to open in the Zoological Gardens of the Bois de Boulogne an exhibition of birds and poultry (*volailles d'élevé*), from which, however, birds of prey are to be excluded. French and foreign amateurs and breeders are allowed to exhibit. Gold, silver, and bronze medals will be awarded on the recommendation of a special jury chosen from both societies. The animals of the Zoological Gardens will not be exhibited on this occasion.

The annual spring cattle show of the Royal Dublin Society will be held on Tuesday, the 22nd inst., and three following days.

A prospectus has been issued of a new joint stock bank for London, to be called the Imperial Bank, with a nominal capital of £3,000,000. The principle of limited liability is to be adopted.

The Hon. W. E. Gladstone, Chancellor of the Exchequer, has consented to visit Manchester, and to preside at the annual meeting of the Association of Lancashire and Cheshire Mechanics' Institutes, on Easter Wednesday, 23rd inst., in the Free-trade Hall. The right hon. gentleman will distribute the prizes and certificates to the candidates who were successful at the last public examinations of the associated institutions.

A new joint stock bank, to be called the Public Bank of London and Liverpool, is in course of formation. The first capital is to be one million pounds, with power to increase it to five.

THE KILKENNY AND SOUTH-EAST OF IRELAND ARCHÆOLOGICAL SOCIETY.

THE April meeting was held on Wednesday, in Kilkenny, James M. Tidmarsh, Esq., J.P., in the chair.

Various new members were proposed.

The Rev. James Graves brought under the notice of the members a correspondence which had taken place between Mr. J. H. Parker, proprietor of the *Gentleman's Magazine*, and the Society of Antiquaries of London. Mr. Parker justly complained that the Magazine did not receive that support from archæologists which the nature of its contents and the excellence of its pictorial illustrations deserved. Mr. Graves pointed out that it would be a subject of much regret if a publication of the kind, in every way so valuable, were suffered to fall from insufficient support; and he trusted the members would support a periodical which never failed to report the proceedings of this and the kindred societies of Great Britain.

Several members expressed their full concurrence in Mr. Graves's observations.

A number of donations of books and coins were laid on the table.

The coin presented by Mr. Budds was one of a "find" of the gun-money half-crowns of James II. They were dug up, in a leather purse, in throwing down an old clay fence at Tullaroan last winter.

Mr. Robertson's presentation was a brass medal, struck in 1754 in commemoration of the spirited conduct of James Earl of Kildare, in protesting against the appropriation of a balance of Irish revenue, by the Government of England.

Mr. Richard Preston, jun., presented a fragment of an effigial monument, which had formerly been in the Franciscan Abbey, Kilkenny. It consisted of a portion of a dog on which the feet of a Knight in armour had rested. A portion of the scollar remained. It had been used as a building stone in an adjoining house.

The Rev. James Mease presented a small scutell vessel, pitcher-shaped, capable of holding about a naggin, composed of common red pottery, glazed.

The Rev. James Graves remarked that from the absence of any archaic character, and the presence of a glaze, the vessel was evidently not of any very remote antiquity. He supposed it might have been intended to contain *aqua vita*, and was certainly not older than Elizabeth's time. It, and its companions, had probably been buried in the rath and forgotten.

Mr. Frederick Jones, of Cool, Castlebridge, Wexford, presented the upper stone of a primitive corn-rubber. It was of granite, and had been found in a bog, near his place, along with a stone belt.

Mr. Dalton, Claremont, county Tipperary, presented a piece of adipocere, or bog butter, found, with the skeleton of a horse, six feet beneath the surface in Claremont bog, near Nenagh.

Mr. Robertson exhibited a very fine stone colt, of porphyry, highly polished, found in the North of Ireland.

Dr. Barry Delany exhibited a small clog, five inches long, with leather upper and wooden sole, the latter bound with iron, and having a gun-money shilling of James II. nailed to the heel inside. He had obtained this object at the sale of the cabinet of a collector in Cork and considered it had been manufactured early in the last century by some ardent Williamite who wished to give a practical illustration of the "brass money and wooden shoes," the introduction of which the adherents of the Prince of Orange had laid to James' charge.

The Rev. George H. Reade exhibited a twisted armlet of copper, the ends fashioned like the head and tail of a serpent, and a bronze ring.

Mr. Prim reported the recent discovery, on the townland of Lacken, in the parish of Ullard, near Graigue, of a leather purse, containing 58 halfpence, of the so-called "St. Patrick's money," and four halfpence of Charles II.; the former in excellent preservation; the latter much worn. They were found on the farm of Mr. Patrick Murphy, of Milltown, by workmen digging about a large boulder stone. The leather purse mouldered away almost immediately on being exposed to the air.

The Rev. James Graves said that since the number of the Society's Journal for September, 1861, had been issued, and his paper on the capture of the Earl of Ormonde by O'Moore had been in the hands of members, a very important point had been resolved by the more accurate local knowledge of one of the members of the Society—a circumstance which showed the use of an association like the Kilkenny Archaeological Society. Mr. Graves then proceeded to read the solution by Rev. Mr. Greene, R.C.C. of Athy, and made some further observations himself.

Mr. Prim stated that Mr. John Otway Cuffe, who possessed property both in Kilkenny and Kildare, had informed him that there was what appeared to be a very ancient and curiously cut stone, in the wall of the old church of Monksgange, on his Kildare property, which he would be happy to place in the museum of the Society, for preservation. Mr. Greene reported that the stone referred to was about a foot square, built in the churchyard wall, and in no danger whatever of injury. It bore the date 1588, and pendant therefrom, by an elaborately sculptured chain, the initial letters R.H., which were doubtless those of Robert Hartpole. The neighbouring castle of Monksgange—from the debris of a portion of which that had fallen, the stone in question was said by tradition to have been removed to the churchyard—belonged in the sixteenth century to the Hartpole family.

Mr. Graves read the portion of Dineley's tour in Ireland—an unpublished MS., portions of which had on former occasions been brought before the Society. The part now read had reference to Kilkenny, and was illustrated by two drawings, one representing the Castle and Parade, with a body of soldiers engaged in military exercise on the latter; the other a fountain then existing in "the water tower," which at the time supplied the Castle with water. The following is an accompanying notice of Kilkenny:—

"Kilkenny is the most pleasant and delightful Town of ye Kingdom of Ireland belonging to the most noble prince, James Duke Marquis and Earle of Ormonde, Earle of Ossory & Brecknock, &c., Chancellor of the Universities of Oxford & Dublin, Lord Lieut. Generall and General Governor under his most sacred Matie. of Kingdom of Ireland whose other titles see pag. . . .

"The Device of his family is COMME IE TROUVK.

"His Paternall chiefe seat is ye Castle of Kilkenny which I have design'd on the other side, famous for spacious Roomes, Galleries, Halls, adorn'd with paintings of great Masters, bowing green, which with an engine of curious artifice by the help of one horse furnisheth all the offices of the Castle with the necessary Element. This Waterhouse hath a pleasant summer banquetting room, floor'd and

lin'd with white & black marble, which abounds here, with a painted skye rooffe with Angells. In this is seen a fountaine of black marble in the shape of a large cup, with a ject d'eau or throw of water in the middle arising mounts into the hollow of a Ducall Crown, which but hangs over it, and descends again at severall dropping places round, this I have touch'd off on the other side the leaf.

"The Buildings here are people fair and fashionable.

"Its situation is in the best Air of Ireland, Upon the river Nore of admirable clear water upon a Gravel wherefore it is said of Kilkenny thus concerning the four Elements there, that it hath

Water without mud, Air without Fog,
Fire without smoke, & Land without bog.

"Their Fewell being a sort of Coal burning bright without smoke or ill-scent not unlike Scotch coale excellent chamber firing, leaving ashes very white. The Territory about it is admirable.

"This Town was anciently the chief see of the Bishop of Ossory.

"Its name, Kilkenny, hath its original in the opinion of some from *Kil*, which signifieth the burying place vulgarly, and *Kenny* some will have it so called quasi Cella Cannici, the Cell or Monastery of Cannicus, a man of remarkable piety in those parts.

"In the Ruins of several Churches in and near this town are several Inscriptions on monuments, of which hereafter."

Communications by Mr. Benn on a "find" of small beads, &c., in a bog in the North of Ireland, and by the Rev. S. Hayman, respecting a bond passed to the Corporation of Youghal, by Thomas Watters, the issuer of a tradesman's token in that town, were then read, and after a vote of thanks to the donors and exhibitors, the meeting adjourned.

PRESENTATION OF THE BUTLER TESTIMONIAL.

On this day, about 8 o'clock, took place at the residence of the recipient, in Leinster-square, Rathmines, the ceremony of presenting Mr. John Butler—defendant in the memorable trial of *Kempston v. Butler*, relative to fall of house in Grafton-street—a valuable service of plate subscribed for chiefly by the members of the Builders' Association, but to which many of the local architects and merchants also contributed. Amongst those present were Messrs. Alexander Parker, J.P., Drury, J.P., Wight, and Evans, Township Commissioners; Exham, Q.C., Osborne and Butler, Barristers-at-law; Williamson, Solicitor; several clergymen and personal friends of Mr. Butler, besides Messrs. Jacob Owen, Lanyon, jun., W. Welland, E. H. Carson, J. C. Burne, George Moyers, and J. J. Lyons, architects; Henry Johnson, C.E.; T. H. Carroll, Rooney, Carroll, jun., Butler, jun., S. H. Bolton, and W. Crowe, Builders; Thomas S. Martin, J. Sibthorpe, Maurice Brooks, &c., &c. Mr. George Moyers, on behalf of the committee, read an address, beautifully engrossed, accompanying the presentation, and which is as follows:—

"The upright and unsullied character you have borne through life, as well as the probity and honor which have marked your career in the high position you have long maintained as a man of business, are so well and deservedly understood and appreciated, that we feel you require no testimony of ours to fortify them in the opinion of the public. Notwithstanding this, we consider we should have reason to reproach ourselves if we did not come forward to express our approval of the course pursued by you under the trying circumstances in which you were lately placed, and to assure you that we waited with much anxiety, the result of the expensive and protracted proceedings in which you were involved—we refer of course to the case of *Kempston v. Butler*, in which you were the defendant. The question at issue being the liability or non-liability of builders engaged in taking down houses for re-erection to support adjoining premises, the plaintiff insisting that they were bound to do so at their own cost and risk, and were subject to bear the consequences of any casualty that might occur from their not doing so, as such was the usage or custom of the City of Dublin. We deem it unnecessary for our present purpose to go at length into particulars of the case—suffice it to say, that you, sir, denied the plaintiff's right, justly feeling that if the principle was once admitted and made a precedent, it would be fatal to the interests of the trade, as well as tend to deter householders from restoring buildings in a state of decay. Aware, therefore, of the magnitude of the interests thus at stake, you manfully grappled with the question, and your resistance only ceased when you had obtained the solemn decision of the Court of Common Pleas, against the alleged custom and liability. The judgment pronounced is so clear and definite that we think we may here usefully quote the following few remarks from it. In the course of it the Chief Justice observed:—'That the custom is so contrary to the rights of property, and to the common law of the land, that, notwithstanding its existence, as found by the jury, we must hold it to be unreasonable and void.' And Mr. Justice Christian remarked, 'That this case is an attempt to pervert what is nothing more than a bad usage in the building trade in Dublin, which may be good for qualifying contracts between builders and their employers, into a local law, conferring rights and imposing liabilities, contrary to the common law, and against common right.' We deem the favourable solution of this question thus for ever set at rest of incalculable value to your brethren in the trade as well as to the public generally, and we heartily congratulate both on the result. We desire therefore to assure you of our lasting gratitude, and we request your acceptance of the accompanying service of plate as a token of our sincere respect and esteem, and beg to subscribe ourselves."

[Here followed numerous signatures.]

After this Mr. Butler, with evident emotion, read the following reply:—

"I thank you very sincerely for this magnificent token of your respect and esteem, and still more so, if possible, for the kind expressions of sympathy and congratulation with which you have accompanied the gift.

"It is no small gratification to me to know that so many of my fellow citizens have approved of the course I pursued under the circumstances to which you have alluded. Having been advised from the first that the custom attempted

to be set up in order to exclude the City of Dublin in that respect, from the operation of the general law of the land, was wholly antinatural in point of law. I persevered in my resistance until I had obtained a decision which places the question beyond all doubt. I cannot help thinking that you give me too much credit for the part I have taken in the contest; but, at all events, I rejoice that while defending my own immediate interests I have been able to vindicate the rights of my brethren in the trade.

"The building trade and the public owe a debt of gratitude to Mr. Justice Christian. When, at length, after three protracted trials, the case was brought before the full Court of Common Pleas for their opinion as to the validity of the alleged custom, that learned Judge, differing from the other members of the court, came at once to the conclusion that such a custom was contrary to law, and against common right. His judgment on that occasion had, I have no doubt, a great effect on the minds of the other Judges, for they eventually coincided with him in opinion, and a unanimous judgment was delivered by the Lord Chief Justice setting aside the verdict given against me, and deciding that the alleged custom was contrary to the rights of property, and the common law of the land.

"Permit me, in my turn, to congratulate the building trade of the city on the result.

"In conclusion, gentlemen, I beg you will accept my grateful thanks for the friendly and generous feelings which have prompted you to make this presentation, as well as for the kind manner in which you have given expression to them. Believe me, I shall remember your kindness till the last hour of my life."

Mr. Butler having received the well-merited and individual congratulations of his friends and guests, the party were conducted to another apartment, where a *dejeuner*, in the most *recherché* style was provided, and a few hours of veritable conviviality were passed. After the usual loyal toasts, the health of "the host" was duly drunk and responded to, as also those of the Builders' Association, coupled with the names of Messrs. J. H. Carroll, Bolton, and Crowe; "the architects engaged on the trial on behalf of defendant," acknowledged by Messrs. Carson and Burne; "the Bar," by Messrs. Exham and Osborne, in effective speeches; "the Jurors of the city of Dublin," by Mr. Parker, whose eloquence would do credit to many a distinguished member of the Imperial Parliament; "the Merchants," by Messrs. Drury and Martin respectively; "the Rathmines Commissioners," by Messrs. Drury, Wight, and Parker; "the Press," by Mr. J. J. Lyons, DUBLIN BUILDER; besides various others, with more individual allusion.

The company dispersed at an early hour, having experienced unanimous gratification at the evening's proceedings.

THE MUSICAL ARRANGEMENTS AT THE OPENING OF THE INTERNATIONAL EXHIBITION.

THE great Orchestra erecting under the Eastern dome is rapidly approaching completion. Excepting only the Handel Festival Orchestra at the Crystal Palace, it is by far the largest ever built in this country. It will accommodate upwards of two thousand performers. Projecting sixty feet under the dome, it extends the whole width thereof, rising above the gallery to a considerable height in front of the under part of the round stained-glass window over the eastern entrance. The lower thirteen rows of this great staging will be occupied by the instrumental portion of the orchestra, the upper twenty-six rows by the chorus. Exclusive of the side portions in the galleries, the width of the orchestra is 135 feet.

The instrumentalists employed on this occasion will be about four hundred in number, including all the leading professors, and many amateurs of talent. There will be 196 violins and violas, 90 violoncellos and double basses, with about 112 wind instruments, drums, &c. The lists of performers have been carefully revised by Mr Costa, and there is no question that it will be one of the finest bands ever brought together.

The chorus will comprise about five hundred voices to each of the four parts. Besides the chorus of the Sacred Harmonic Society, a considerable number will be brought from various provincial Choral Societies, Cathedral Choirs, &c., throughout the country.

The *Wexford Independent*, in quoting the recent paragraph respecting the Franciscan Church in that town, says:—"We take the above from our contemporary, THE DUBLIN BUILDER, and we have much pleasure in adding that our enterprising fellow-townsmen, Mr. Patrick O'Connor, has been the successful contractor, after severe competition with some of the first builders in the kingdom, for carrying the contemplated improvement into execution. The communication informing Mr. O'Connor that his tender had been accepted contained these words—"Your tender has been accepted, although it is not the lowest."

GALWAY.—In our notice of this town, in last number, we omitted to mention the name of Mr. Patrick Nugent, builder, as joint contractor with Mr. John Semple, for the Jesuits' Church and College, and other works executed under Mr. Roberts', C.E., directions. Mr. Nugent was also contractor for some of the extensive works executed in same town by the Board of Public Works. By a typographical error the mansion described as "Spanaboy" should have been Lenaboy.

Reviews.

The Year-book of Facts in Science and Art for 1862.

London: Lockwood and Co.

IN this, the age of progress, each day ushers in some new invention or discovery in the arts and sciences. To the inventor, the manufacturer, or, in fact, the general public, a chronicle of the most important of those must prove at once both useful and interesting. The book in question contains, amongst much other most valuable information, facts which have been brought to light in the course of the past year, in reference to the mechanical and useful arts, natural philosophy, chemical and electrical science, natural history, &c.; also an obituary list of all the eminent men in science and art who have died during the year, with a short sketch of the life of each. We can safely recommend the Year-book of Facts as a very useful annual.

Lessons in Plane Trigonometry. By Edward Butler, A.M. Dublin: A. Thom.

THIS little treatise exhibits the theory and practice of Trigonometry in a series of well connected lessons, while all unnecessary formulæ and calculations, tending only to confuse the student, are carefully avoided. The elements of spherical trigonometry, and the dependence of navigation on it, are well and concisely treated.

The author has designed his work to be available for those who have a thorough acquaintanceship with the two first books of Euclid's Elements, and twenty-one propositions of the eleventh book, which alone are considered necessary to obtain a sound and practical knowledge of the science.

It is a decided acquisition to the mathematical student and the scholar.

Outlines for Illumination from Tennyson's "Idylls of the King." London: Winsor and Newton.

TOWARDS the close of our volume for last year we reviewed a "Manual of Illumination," produced under the auspices of an eminent London art-publishing and artist's colourmen firm, who now—as further evidence of enterprise in same direction—forward to us parts 1 to 8 of the work, entitled as above, and with which their name will be found associated. The majority of "the Outlines" are in the style of the 14th century, that of the 13th being only adopted for parts 5 and 7, but all are treated with exquisite delicacy, originality, and spirit. Could we institute a preference—and it is confessedly difficult from the extreme merit displayed throughout—the design and composition of No. 8, the most elaborate, would also seem to be the most noteworthy. The manipulation of the various parts, whether in the ornamental foliage, the figure etching in groups or spandril medallions respectively, or in the alphabetical characters, is unexceptionably excellent; and the impressions in vermilion and black tints—the latter predominant—are produced in the highest order of lithographic art, and on excellent material. The wrappers of themselves present a meritorious study, and form most suitable shrines for the art-treasures therein contained.

Old Carlisle Bridge. By William Scribble, Esq. Dublin: Wiseheart and Son.

GENUINE satire, without ambitious witicism, mingled with vulgarity and stupidity, is a rare article now-a-days, and when found, cannot be too highly prized. Such, however, is the characteristic of the happily conceived *brochure* before us, by an ideal author rejoicing in the cognomen of "Scribble." It requires no trifling stretch of imagination to reconcile, with consistency, the presentation of a "one act drama," in which a bridge, a river, two memorial statues, and some public and private buildings constitute the *dramatis personæ*, and enter into a colloquy; yet this difficulty once got over, the plot becomes pleasingly developed, and is maintained with spirit *ab ovo usque ad mala*. The author of this unpretending three pennyworth has done more practical good in the exposition of the unsuitableness to its purpose of our present Carlisle-bridge, and of the imperative necessity that exists for a more commodious and artistic structure, than could the prolonged vociferations of the most eloquent advocate, and the elucidation of theories by the most profound statistician. Our readers will peruse—and perhaps not unaccompanied by a smile—the following quotations:—

OLD CARLISLE BRIDGE, (*speaking with difficulty*)—

Pity the horrors of Old Carlisle Bridge,
Now trembling 'neath increase of work and years,
My traffic was—when built—a little midge,
Compared to what now fills me with such fears.
These battlements and stones my age bespeak,
This narrow chest is sorely tried each day,
Its burthen grows as I become more weak,
O Gladstone help, and for a new Bridge pray.

Remember I'm not suited for such times,
Each street about me echoes with my name;
I hear them charging me with various crimes;
At my infirmities they're making game.

MISS ANNA LIFFERT—

Of heaven's sake keep up, I've lately nervous grown,
To see you trembling, and to hear you moan,
For centuries now I've glided on in peace,
And trust this course is not about to cease;
Or be disturbed by such a fall as yours,
I wonder Dublin such a Bridge endures.
Beneath thy arches oft I've gone with pride,
In rippling dance to meet my love, the tide;
Returning then we've pondered for a while,
And praised thee for thy beauty and thy style;
But then no streets around thee could compare,
In grandeur of appearance to thy air.

CARLISLE BUILDING, (Kinahan's.)

How is all this to end? why here am I,
A namesake of the old Bridge living nigh;
I've spent of late some thousands on my front,
And wouldn't hesitate to pay more blunt,
Just for the credit of the City's look—
But a new Bridge to build, that's not our hook.
By Jove I'd see some puncture of LL,
To send the nuisance out of this Pell-mell,
And have a Bridge of ample size and breadth,
Whose passage would not cause the fear of death.

LUNDY FOOT—

And I a ton of Canister and Snuff,
Would gladly give to see it wide enough,
Each morning as I look, 'tis like a dream.

NELSON, (shouting to Lundy Foot with a broad grin)—
The Bird's Eye view is Blackguard in extreme.

The exalted sailor is supposed to allude here to the tobacco called "Bird's eye," and the snuff known as "Irish Blackguard." The neighbouring houses and streets all join in laughter.

POST OFFICE, (in a loud voice)—

Hullo! make way there quickly for the mail,
In haste to be in time at Kingstown rail;
Many a time and oft have we been late,
By that old Bridge's over-crowded state.
'Tis sometimes thought the steamers are the cause,
Or that in England there has been some pause,
But howling storms, or Irish channel's wave,
Our rapid vessels can with freedom brave,
And no impediment on English line
Has been. Old Bridge, one half so great as thine.
Thou art the cause, the sole remaining stay,
Of all our mail deliveries night and day.

THE ROTUNDO, (pointing to the Lying-in-Hospital, and laughing)—

Female Deliveries quite the other way,
For here, from crossing that old Bridge, with fright,
Our Births are seldom altogether right,
But such deliveries, as you've heard I'm sure,
Are never late, but always premature;
We've scarcely time to call the accoucheur.

TOM MOORE'S STATUE (Striking up to the air of "Love's Young Dream")—

O thy days are gone, Old Bridge good night,
My heart feels sore,
When I think upon thy beauty bright,
In days of yore,
But now around
Thy ancient ground,
All's beautiful and new,
And there's nothing ugly to be seen—

NELSON, (taking up the song with a hard sarcastic grin)—

Excepting you—
No there's nothing ugly to be seen
Excepting you.

General laughter at Tom Moore's expense; the Poet looks rather sheepish at the interruption to his song.

TOM MOORE, (recovering himself)—

I must confess I'm not exactly right,
Each day I'm wishing for the shades of night,
To hide me from the gaze of critic's eye,
I'm rather sore at sneers from passers-by;
I've heard them say my pose is rather queer,
More fit for Littledale the Auctioneer,
When for "the third and last time" he is on
Some lot, exclaiming, "going—going—gone."

OLD CARLISLE BRIDGE (with an arch look of satisfaction at the prospect of his release from the troubles of life)—

Fear not my friends, I've yet a little strength,
To drag my days out to their destined length;
Though bending 'neath the weight of honor press'd,
This day, so suddenly, upon my breast.
The fifth Earl Carlisle was my sponsor here—
His good descendant now attends my bier.
A Bridge of groans before his council dies,
To be succeeded by a Bridge of size.
When I look back to all that I have seen—
The Irish Parliament in College Green—
The Monster Meetings and the Orange Boys,
Mingling their shouts of discontent and joys—
Election rows—Processions, great and small—
The gatherings at Conciliation Hall—
The Royal visits—George the Fourth I've seen,
And, happier days, our own beloved Queen,
With whom our tears of sympathy have since
Been shed, in mourning for a Noble Prince;
May she be reconciled, and yet pass o'er
In health, New Carlisle Bridge, when I'm no more.
And now farewell to every ancient friend,
May my successor to your welfare tend;
Farewell Old Custom House, we've neighbours been
Through many years of strange and changing scene;
We've seen sad things, as well as many a spec,
Farewell, Old Custom House, remember me.

But hold—too long I fear we now delay,
The Viceroys seems in haste to be away;
So now, Lord Mayor, pray hasten to conclude,
And do not think my interruption rude.

MISS ANNA LIFFERT again shrieks and expresses her fears as to the strength of the OLD BRIDGE to bear his present weight. The Lord Mayor presents the address in a hurry, and is knighted in great haste, a preliminary step to the higher title expected to be conferred on him; the ceremonies indeed, are rather a BRIDGE-ments of what were intended; Kelly's Gunpowder Office, each-bits blue fire, squibs, &c.; the music houses in Westmoreland Street, led by Russell, as conductor, play the National Anthem; Chancellor takes a photographic view of the scene, and announces that he has a carte-de-visite portrait of Mr. W. Scribble, the Author of this Drama; the curtain drops upon a scene of general rejoicing—which baffles all description—at the immediate prospect of the removal of OLD CARLISLE BRIDGE.

Miscellaneous.

THE NEW CORK CATHEDRAL.—The sub-committee, appointed to procure plans and designs for the new cathedral, met on Saturday. It was then decided that, in accordance with the resolution of the general committee, architects be invited by public advertisement to furnish within a period of three months plans and designs, for which the committee offer prizes of £100 for the first £50 for the second best.—*Cork Constitution.*

THE BUILDERS' STRIKE AT SOUTHPORT.—This strike, which commenced a fortnight since, is still maintained, and, on the part of the masters, there does not appear to be any inclination to concede the demand of the men, which is the Saturday half holiday, without any reduction of wages (30s. per week). The number of bricklayers and labourers who turned out was about 130, the latter for an advance of wages from 18s. to 20s., most of whom have since left the town. The Southport club, which has but recently been established, has had its funds augmented during the past week by contributions from Liverpool and other places. The joiners, who had also determined to turn out for the same object, have not done so, their masters having promised to accede to their demands on the 1st of May, next.

PORTRUGAIN SLATE AND SLAB QUARRIES.—The colour of the Slates produced at the Portgaine Quarry is dark blue; they are of fair quality and harden when placed on the roof; but as they do not split very thin, they are charged at second quality price. The same may be said of the Trwynllwyd Quarry, which are grey in colour, and possess extraordinary durability. The slabs produced from these quarries are unsurpassed by any in the world, for the various uses to which Slate Slabs are applied; and the Proprietors, Messrs Hewett and Co. state that if favoured with an order, and the purpose for which the Slabs are required—whether for Flooring; for Slabs to be exposed to the weather; for in-door purposes, or for enamelling be stated—they will guarantee satisfaction. Further particulars can be had of the agent Mr. Lyons at office of *Dublin Builder*, 17, Lower Gardiner-street.

THE OSSIANIC SOCIETY.—By latest report of Council we find that—"Notwithstanding the delay and inconvenience consequent on the conduct of dilatory and defaulting members, the Council have felt themselves in a position to authorise the publication of the sixth volume of Ossianic Records. This volume was published in September, 1861, and includes the 'Lay of the Chase of Sliaiv Guillin,' and other notable, interesting, and popular remains. They are also gratified to state that the demand for copies of the first and second volumes of their Transactions has been so great as to induce them to authorise the publication of new editions of those volumes. This, taken in connection with recent appearances, external to this society, of Celtic works of eminent value, gives good promise of renewed and earnest interest in our ancient literature. The present unhappy war in America has, however, temporarily prevented the energetic action, and deprived us of the expected support and extension hoped for from the affiliated branch of this society in New York. The Council will not relax their efforts. The seventh volume of their Transactions is now in preparation. Members of the society are, therefore, requested cordially to unite with the Council in their endeavours, and aid, as they can aid materially, by prompt response to circulars, in withdrawing from darkness, decay, and neglect the remains of our ancient literature."

LENDING MONEY BY THE BOARD OF WORKS.—"A Subscriber," Limerick—My lease is for 90 years.—Will the Board of Works build a lodge, and, perhaps, one or two offices, say to the extent of £100? The lodge at the avenue gate, of course, for a labourer to live in, and to use up into it the materials of a house a few hundred yards away; the other offices to be liners around a large yard for cows, &c. &c., and which I would wish to be made so as that I could make hay-ricks on top, to save room.—The Board of Works will only lend money for new farm buildings and labourers' cottages, but, we believe, not for gate lodges. The interest in the lease is quite enough, but you must confine yourself to the term labourers' cottage, and not call it a lodge. In your application you must also furnish plans, specifications, and estimates, according to the Board's instructions, which will be furnished you on application.—*Farmers' Gazette.*

TELEGRAPH STATION AT ROCHE'S POINT, CORK HARBOUR.—This telegraph has been recently erected by the London and South of Ireland Direct Telegraph Company. The object of this newly-formed company is to place Cork and Queenstown in direct communication with London. The existing route is 739 miles in length, namely, by Liverpool, Carlisle, Port Patrick, Donaghadee, and Dublin; and, being so circuitous, it involves many breaks, thereby causing great delay, uncertainty, and frequent incorrectness in the transmission of messages.

PUBLIC HEALTH.—At a meeting, on yesterday, of the Blackrock Town Commissioners the following resolution was passed:—"That in adopting, as we did unanimously, the resolution of the 7th inst., relative to the Convalescent Hospital, we represented that the situation selected for this purpose in a crowded and populous neighbourhood was wholly unsuitable on two grounds.—*First*, that it was unfit for the patients themselves; and *secondly*, that great alarm was felt by the inhabitants of the locality in question with respect to it." A committee was formed to examine the fountain in Carysfort-avenue to ascertain if it could be moved to a more suitable place.

GLASNEVIN CEMETERY.—Speaking of this cemetery, Mr. R. Fish, author of a few days' tour in Ireland, says, "its neatness would give a useful lesson to many managers of graveyards in England and Scotland. What would our Irish friends think of us if in one case they saw the sacred spot pastured with sheep, and in the other found nothing in the way of flowers but nettles so rank and luxuriant that finding any particular grave was next to impossible. We twice passed the cemetery—once late in the afternoon, and again rather early in the morning; and even in the latter time there were not wanting those who were showing their respect for the departed by mourning over their dust, and tending plants, and scattering flowers over their graves. Such an employment can hardly fail to soften and elevate the feelings of the living."

A NEW METAL.—The *Messenger du Midi* asserts that the new gums introduced by Austria on board her vessels, and the composition of which had been hitherto kept a secret, are cast in an alloy called *Aich metal*, from the name of its inventor. This alloy is composed of 600 parts of copper, 382 of zinc, and 18 of iron. It is exceeding tenacious, can be easily forged and worked, and will bear a considerable inflexion when cold without breaking, its resistance being greater than that of iron of the best quality.

MONRO'S CANNON BOILERS.—We some time since had an opportunity of inspecting these boilers at the manufacturing establishment of the patentee, Mr. J. Jones, Bankside, London, and can recommend them as peculiarly efficient for conservatories and green-houses especially, from the quantity of pipe they are capable of heating, while simultaneously combining the rare desideratum of "economy of fuel." They have been extensively adapted throughout England and Scotland, and though also introduced in various parts of Ireland we should be pleased to hear of their more general adoption, as they only require to be known and tried to be appreciated.

TRANSPARENT PHOTOGRAPHY.—We have seen a very beautiful specimen of portrait photography on opal glass. The advantage of this material is that its surface being finer and smoother than paper, there is a corresponding fineness in the photograph. The glass will receive colours so well that a photograph upon this material can be made to excel the finish of a miniature upon ivory. The opal glass is also translucent, and has all the effect of a transparency when held to a gas light or in the sunshine.—*Manchester Examiner*.

TENDERS.

For New Provincial Branch Bank, Nenagh; Mr. William G. Murray, architect:—

J. Hunter, Bandon	£3010	0	0
J. Newstead, Fermoy	2942	0	0
W. Hague, Cavan	2797	0	0
Wardrop and Son, Dublin ..	2682	0	0
J. Freeman, Dublin	2630	0	0
Ryan and Son, Limerick ..	2600	0	0

For repairs &c. to the Widow's almshouse, Rathoe, Co. Donegal; Mr. Fitzgibbon Louch, architect, Sackville-street, Londonderry.

Oliphant's and Campbell ..	£297	10	0
Brown and Gregory	295	10	6
Hutchison and Colhoun, Derry	265	0	0
A. McNaught	259	1	10
Robert Ferguson, Derry, (accepted) ..	220	0	0

NOTICE.

The Proprietor requests that Advertisers and Subscribers for past year who have received accounts, also such of the latter as desire to favour by retention of their names on the list for current year, will please remit amounts to the Publisher, Mr. PETER ROE, 42, Mabbot-street, Dublin, in whose favour Money Orders should be made payable.

TO ARCHITECTS AND BUILDERS.
Sheep House Limestone Quarries, Drogheda.

A. AND N. HAMMOND beg to call the attention of the Trade to their establishment, from which Cut Stone-work is delivered for Dublin free on wagon at Amiens-street Terminus, Dublin and Drogheda Railway. The above Quarries are situated on the south side of the River Boyne, within 2½ miles of the Drogheda Station.

For Prices apply at the Quarries, or at their Office, John-street, Drogheda, and 28, Amiens street, Dublin.

MIDLAND GREAT WESTERN RAILWAY.

MOATE FAIR

On FRIDAY, the 25th April, 1862.

A SPECIAL PASSENGER TRAIN

(With 1st 2nd, and 3rd Class Carriages)

Will leave the BROADSTONE TERMINUS, DUBLIN, at Five o'clock Morning, calling as follows:—

	a.m.		a.m.
Clonsilla	5.18	Killucan	6.40
Maynooth	5.40	Mullingar	7.5
Kilcock	5.50	Castletown	7.22
Enfield	6.10	Streamstown	7.30
Hill of Down	6.30		

And arriving in Moate about 7.40, Morning.

Third Class Passengers will be booked by the Up Train leaving Moate at 2.35, p.m., for stations at which this Train calls, as per Company's Time Table.

N.B.—Special Trains will be in readiness for the conveyance of Cattle. W. FORBES, Manager, Broadstone, Dublin, 9th April, 1862.

DUBLIN AND DROGHEDA RAILWAY.

GOOD FRIDAY AND EASTER WEEK.

Passenger Trains will run on Good Friday as on Weekdays. Return Tickets for the Main Line, and Navan and Kells Branch, at about One-and-a-half Fare, issued on Thursday, April 17th, and until the Evening of Easter Monday, April 21st, will be available, for Return up to Easter Tuesday Evening, April 22nd.

No Goods received, conveyed, or delivered on Good Friday.

HOWTH BRANCH.

REDUCED FARES.

On EASTER MONDAY AND TUESDAY.

The Passenger Fares, Dublin to Howth and Back, will be as under, viz:—

First Class, 1s. 4d.; Second Class, 1s.; Third Class 8d.

By Order.

J. P. CULVERWELL, Secretary.

Dublin, April 1st, 1862.

GREAT SOUTHERN AND WESTERN RAILWAY.

EASTER EXCURSIONS.

Return Tickets, First and Second Class, issued at the ordinary rates on THURSDAY, the 17th instant, and following days, will be available for Return on any day up to, and including, TUESDAY, the 22nd instant.

N.B.—On Good Friday, 18th instant, the Trains will Run as the other Days of the Week.—By Order, W. M. TAYLOR, Secretary, King's-bridge Terminus, Dublin, 11th April, 1862.

To Builders, Painters, Decorators, &c.

FIELD & CO., Printing Ink, Vegetable Black, Varnish and Steam Colour Works, MAIDEN-LANE, HOLLOWAY, N., LONDON.

ESTABLISHED 1838.

F. and Co. beg to call attention to their reduced Price List of Varnishes, as under:—

	Per Gal.	s. d.
Fine Elastic Oak or Wainscot, a durable and brilliant Varnish for Oak or Grained Work and Paper Hangings	7	6
Fine Copal Oak, a pale transparent highly-polishing Varnish, for all out-door work ..	9	6
Fine Elastic Carriage, a pale durable Varnish, recommended for all first-class work ..	12	6
Fine Elastic Old Body, a very pale brilliant Varnish that will stand for years, suitable for very superior work, and where much exposed to the weather	16	0
Fine Paper, a pale and glossy Varnish for papered walls	6	6
White Copal, a colourless and durable Varnish for light Sienna, grey, or white marbles and papers with very light grounds, much in request	10	0
Ground Colours always in Stock at equally reasonable prices.		

F. and Co., in their Printing Ink and Vegetable Lamp Black Department, have also made every reduction consistent with retaining their long-earned credit for quality. Price forwarded on application.

Carriage paid to Dublin on Orders of £5 and upwards. P. O. Orders to be payable at York-road, King's-cross, N.

FOXROCK BUILDING ESTATE,

NEAR STILLORGAN AND KINGSTOWN, CO. DUBLIN.

FOR DETACHED VILLAS this Property is chiefly intended. The RENT for PLOTS is exceedingly moderate; BEAUTIFUL SITES, with Sea and Mountain Views, and within a few minutes' walk of the Foxrock Railway Station, can be had at £10 for a single Acre; BRICKS, LIME, SAND, and STONE, on the Property, are sold at reduced Rates to Tenants—the saving in Carriage thereby is an important additional advantage; the RAILWAY SUBSCRIPTION to Dublin is only £7 a year second class, and £9 first; the FOXROCK OMNIBUS and Stage Cars ply regularly to Kingstown, Kill of the Grange, Cabinteely, Glenageary, &c.; the FOXROCK MART supplies Drapery, Groceries, Provisions, and Meat, all of best description, at and under lowest Dublin prices; a NEW CHURCH is to be built on the Property this year; a HOTEL is being erected near the new Railway Station; BUILDING LEASES FOR 900 YEARS are granted; in fine, nothing is wanted to promote progress, and secure to the Capitalist permanent and remunerative returns for Investment.

N.B.—Upwards of THIRTY THOUSAND POUNDS have been expended on this Property in Buildings, Roads, and other improvements, within the last Two Years. The Houses built are all Detached, and are from £500 each to £5,000 in value. Applications are daily increasing for Houses at Foxrock, of all sizes. Those finished are all most respectably occupied. Apply to

W. W. BENTLEY, FOXROCK; or BENTLEY & SON, 110, GRAFTON STREET.

Oils, Colours, Glass, &c.

MANNIN'S Wholesale and Retail
DRUG, OIL, COLOUR, and GLASS WAREHOUSE,
2, GREAT BRUNSWICK-STREET.
(near D'Olier-street.)
Cattle Medicine of all kinds.
N.B.—Every article is warranted genuine, and at
the lowest price.

WINDOW GLASS, for Domestic
Windows, Shop-fronts, Conservatories, Sky-
lights, &c.
G. COOPER & Co., 53, Westland-row, Dublin.

WINDOW GLASS for Dwelling
Houses, Out-offices, Conservatories, &c., with
a large assortment of Plate Glass Mirrors.
MAURICE BROOKS,
SACKVILLE-PLACE, DUBLIN.

UNION PLATE GLASS COMPANY.
The very beautiful article of Plate Glass, manu-
factured by this company, can be had at the price of the
lowest in the market, shipped to any Port in Ireland.
H. SIBTHORPE AND SON, Agents for Ireland,
11 and 12, CORK-HILL, DUBLIN.

ECCLESIASTICAL, PALATIAL, &
DOMESTIC STAINED GLASS and MURAL
DECORATION, in all its variations of periods, em-
bracing Heraldic Blazonry, Illuminated Tablets,
Brasses, Frescoes, and Stained Glass Windows, as
Memorials or otherwise.

At Mr. WARRINGTON'S West Central Establish-
ment, 43, HART-STREET, Bloomsbury-square, London,
opposite Mudie's Library, where may be had Mr.
Warrington's "History of Stained Glass."

PLATE GLASS, PIER and CHIMNEY
GLASSES, of the largest dimensions, SILVERED;
and all sizes, SILVERED and UNSILVERED, for mirrors,
sashes, and shop fronts.

WALTER BURKE,
91 AND 93, MIDDLE ABNEY-STREET.

WINDOW GLASS.

E. JACKSON supplies **BRITISH PLATE**,
PATENT PLATE, HARTLEY'S ROLLED PLATE,
CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, PHO-
TOGRAPHIC, MICROSCOPIC, and every description of
Glass, of the best manufacture, at the lowest terms.
OILS, COLOURS, CEMENTS, and PLASTER.
Lists of Prices and Estimates forwarded on appli-
cation at the Warehouse, 32, LOWER ORMOND-QUAY.

Statuary, Marbles, Cements.

THE KILKENNY MARBLE WORKS.
**CHIMNEY-PIECES, MONU-
MENTS, &c.**
WAREHOUSE—53, WESTLAND-ROW, DUBLIN.
G. COOPER & CO, Agents.

MARBLE & STONE CARVING WORKS,
BURY NEW ROAD (corner of Fairy-lane),
MANCHESTER.

WILLIAM GREEN, formerly with
Messrs. Lane and Lewis, Sculptors, of Bir-
mingham, and late Foreman to Mr. H. Lane, begs to
inform Architects and Builders that he executes, on
the most liberal terms, Altars, Reredoses, Pulpits,
Fonts, Chimney-pieces, Tombs, Monuments, &c., in
Marble and Stone, at the lowest price compatible
with good workmanship.
All Orders executed with promptness and per-
sonal attention.

Plaster of Paris.
Roman Cement.
Portland Cement.
Patent Mastie Cement.
John's Patent Stucco
Cement.
Keene's Patent Marble
Cement.
Of the best quality, to be had of
SALMON RICE, AND CO.
3, ANGLESEA-STREET.
Also Crown, Sheet, and Plate Glass; Fire Bricks
Tiles, &c.; Painters' and Plasterers' Brushes.
Gypsum for Agricultural Purposes
STEAM MILLS and MANUFACTORY—CROWN-ALLEY,
Established, A.D. 1780.

ROMAN CEMENT, &c.—As Agent
for Messrs. GEORGE ANDERSON & Co., of Glasgow,
the undersigned offers their unequalled Manufacture
to Wholesale Dealers, Builders, and Contractors, on
the same terms as if bought in quantity direct from
the Makers.
Constant and increasing Sale of the article, for
over a quarter of a century in this country, is respect-
fully submitted as the test of its excellence.
Mastie Cement, Portland Cement and Plaster of Paris,
each of guaranteed quality and unusually low price.
JOHN CARRICK,
WINDOW GLASS and CEMENT WAREHOUSE,
5, MARY'S-ABBEY.

TO ARCHITECTS and GENTLEMEN HAVING
MANIONS IN COURSE OF ERECTION.
JAMES HOGAN AND SONS,
STUCCO PLASTERERS, GENERAL CEMENT WORKERS,
MODELLERS, &c.,
168, GREAT BRUNSWICK-STREET.
Beg leave to state that they are prepared to under-
take Contracts in the above line. Ornaments for
Cornices and Centre Pieces for Ceilings applied.
Fronts for Houses done in Portland or Roman
Cement at first cost price. Country Orders strictly
attended to, and first class workmen sent to all parts
of the Kingdom.

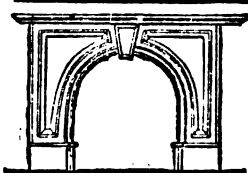
ROMAN, PORTLAND CEMENT,
AND PLASTER OF PARIS.
We offer at *unusually low prices* the above articles,
from the works of the most eminent Manufacturers
of the day.
Building and Farm Yard Ladders always on hand.
ROBERT LOVELY and SON,
OFFICES and STORES,
Nos. 17, 18, and 34, POOLBEG-STREET, DUBLIN.

BEST CEMENTS.
ROMAN CEMENT, PORTLAND
CEMENT, and PLASTER PARIS STORES,
10, ST. JOHN'S-QUAY, DUBLIN.
GEORGE HOLMES and Co. are constantly supplied
with the above materials of genuine quality, direct
from the best manufacturers. Also Sewerage Pipes,
Junctions, Bends, &c.

CHIMNEY PIECES—in Italian, Bel-
gian, Irish, and English Marble; Enamelled Slate,
and Cast Iron: suitable for Drawing-rooms, Dining-
rooms, Bed-rooms, &c. A very large Stock to select
from. **MAURICE BROOKS, Sackville-place, Dublin.**

**THEODOLITES, LEVELS, CIR-
CUMFERENTIAL, MATHEMATICAL DRAWING IN-
STRUMENTS, SCALERS, RULES, TAPES, T SQUARES, &c.**
JOHN ARCHBUTT, 20, Westminster Bridge Road,
Lambeth, near Astley's Theatre, respectfully calls
attention to his Stock of the above articles, manu-
factured by superior workmen. The prices will be found
considerably lower than ever charged for articles of
similar quality. An illustrated price list forwarded
free on application. 8-inch Dumpy Level complete,
6 guineas; 10-inch ditto, 8 guineas; 14-inch ditto, 10
guineas; with compass, 1 guinea each extra. Best
5 inch Theodolite, divided on Silver, 15 guineas.

Mr. John J. Lyons, Architect, &c.,
17, LR. GARDINER-STREET,
PROPRIETOR AND EDITOR OF
"THE DUBLIN BUILDER."



THE CONTINENTAL MARBLE COMPANY.
ARCHITECTS and BUILDERS will find a con-
siderable reduction in the prices of **MARBLE CHIMNEY PIECES,**
SLABS, &c., at the Company's Show Rooms,
3, Broad-street-court, New Broad-st., London.
MARBLE CHIMNEY PIECES FROM 16s. 6d. to £100.
A LIBERAL COMMISSION ALLOWED TO THE TRADE.

CLARKS'
PATENT SELF-COILING REVOLVING SHUTTERS,
FOR SHOP FRONTS and PRIVATE HOUSES.
THE MOST SIMPLE, SECURE, and CHEAP SHUTTERS EXTANT,
In Wood, Steel, or Iron, 2s. 6d., 3s. 6d., and 5s. per Foot super.
BRASS SASH-BARS, STALL-BOARD PLATES, Etc., Etc.
To Her Majesty's Board of Works.

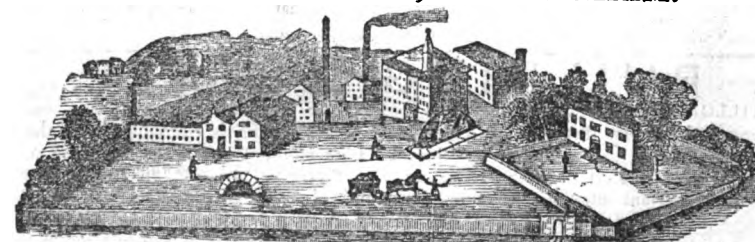
15, GATE-STREET, LINCOLN'S-INN FIELDS, LONDON.

JOHNSTON, BROTHERS,
Medicval Metal Workers and Gas Fitters,
MANUFACTURERS OF
STANDARDS, BRACKETS, CORONÆ, &c.,
FOR

CANDLES, GAS, OR MODERATOR LAMPS, BOOK-STANDS, LETTERNS, FONT
COVERS, ALMS DISHES, ALMS BOXES, MONUMENTAL BRASSES,
PEW-LOCK FURNITURE, ETC., ETC.

Architects' Designs accurately executed; Drawings and Estimates furnished.
Manufactory—190, HIGH HOLBORN, LONDON, W.C.

HIBERNIAN MILLS, KILMAINHAM.



ROOM PAPER.—A splendid assortment of the above, including the newest
designs, at moderate prices.
Room Paper, Roman Cement, Portland do., Plaster Paris, White Lead, Ground Colours, Patent Driers, Putty, Whitening, John's Cement, Mastie, Coal Dust.
SAMUEL DAVIS, MANUFACTURER,
AND AT
137 AND 139, ABBEY-STREET.

The Dublin Builder.

VOL. IV.—No. 57.

PENCILINGS IN LANCASHIRE.*

LEAVING Oldham we proceeded for a brief period to Rochdale, and were much pleased with the general aspect of the town, though, like all those in the English manufacturing districts, it is almost perpetually enveloped in the smoke emitted from its forest of tall chimneys. The shop-fronts are neat and cleanly, the streets fairly paved; and, if we might judge by the gas works and the many lamps, well lighted too. Distress, however, is here, also, present to an alarming extent, the workhouse is crammed, and the demand for out-door relief is considerably greater than the supply. The establishment of Messrs. Robinson and Son, who both manufacture all manner of engines and wood-cutting machines of superior workmanship, as also vast quantities of ready-made carpentry work from same, occupies an extensive area near the railway station, which is a neatly-designed structure, and gives employment to a legion of hands, contributes much pleasure and improvement by an inspection. The majority of the buildings for public purposes have some notable architectural features, the Ecclesiastical being in the predominant. Returning to Manchester, with, however, the prospect of repeating our acquaintance with Rochdale at some future time, we encounter the same hum of business, the same crowded thoroughfares, the same activity of movement as before. Yet, in the architectural line, there is not so much doing, comparatively speaking. Paying the venerable Cathedral our usual respects, we regret to perceive that time has been laying his withering hand unsparingly on all parts of his exterior; and the building, notwithstanding important restorative works recently effected, must, on the whole, be regarded as in a *very bad* state. Two handsome stained-glass windows are being added—one in the Derby chapel—by Messrs. Edmundson and Son, of New Wakefield-street, in that city, who are also executing various works in the neighbourhood, and are at present, as we learned at their establishment, engaged on some orders from Ireland. About the time of our visit the new church of St. Paul, in Brunswick-street, was opened, and the *Manchester Courier*, in referring to it, thus speaks of the chancel window, designed and constructed by that firm:

"The window consists of three principal lights, and each light contains the representation of a prominent event in the life of St. Paul. In the first light the apostle of the Gentiles is sitting at the feet of Gamaliel, receiving instruction according to the law of the Hebrew fathers. The centre picture depicts the conversion of Saul on the way to Damascus; and the third light is devoted to the memorable scene—Paul before Agrippa. Each group is effective both in drawing, costume, and colouring. Below each light is a kneeling angel bearing a scroll inscribed with a suitable text; and above there is rich canopy work. In the tracery are other angels with the inscriptions—Repentance and Faith—and various sacred emblems are judiciously introduced amongst the rich foliated work. Two wheel windows by the same artists will adorn the east and west gables of the church; the first containing medallions of the four major prophets, Isaiah, Jeremiah, Ezekiel, and Daniel; and the latter the emblems of the four evangelists. In our notice of the Gothic R. C. Chapel, recently opened at Rusholme, we omitted to state that the two stained-glass windows were also designed and executed by Messrs. Edmundson."

Of this latter the *Tablet* says:—

"As a work of art, both in colour and design, the artists will add no little to the celebrity which their names are acquiring for taste and skill in this high branch of church ornamentation."

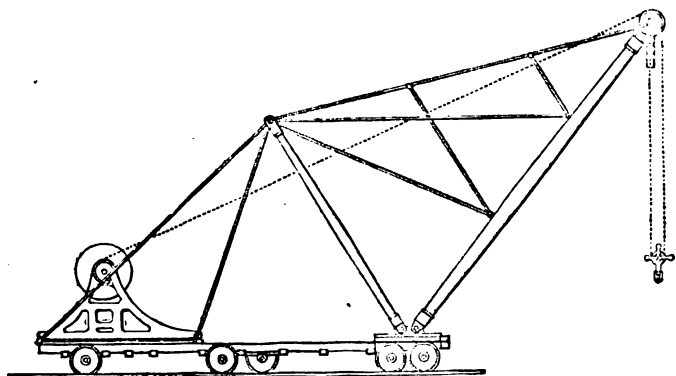
Of the new buildings, we notice an Italian structure for insurance purposes, just approaching completion in King-street, and an acquisition to the architecture of that leading street; also some commercial houses—the prevalent subjects for building operations—rearing close by, as elsewhere, throughout. The assize courts we described and illustrated in the *DUBLIN BUILDER* for the 1st ult. An admirably-arranged and tastefully-designed new market has been erected in London-road, and has entrances likewise in Birmingham and Swarbrick-streets. There is another comprehensive market, but for different purposes, at Shude-hill, 422 feet by 244 feet in extent, with four

arcades, and covering an area of 11,441 square yards, besides smaller markets in Deansgate, &c. In the suburbs of Chetham, Charlton-on-Medlock, and Rusholme, &c., villas and terraces are springing up, and with them houses of worship, many of which are creditable to the architects. The Manchester folk carry the accommodation of "resting places" to "the fair"—a slice off the pier of a shop-front in a crowded thoroughfare—large enough to admit a person for a certain purpose, or an extempore arrangement of Yorkshire flags vertically placed against the entrance of a beer-shop—as at "the Bee" and "the Vine," respectively, in Great Portland-street, right midway between two of the most magnificent warehouses—and to the full view of all passers-by, is nothing new in this vast emporium of commerce, and to our minds is revolting in the extreme to the spirit of *common decency*. Looking at "the Irwell," we certainly cannot appropriately exclaim with the poet, "flow on thou *shining* river;" for it is, without exception, the inkiest stream we ever beheld, and during the greater portion of the year the atmosphere prevailing in the immediate city is almost of sufficiently sensible substance to "be cut with a knife"—rather trying on the lungs. Yet, the Manchester folk have really *good* "air" and "water," and abundance of them. A great portion of the city is comparatively low, but the suburbs are high and healthy. Watts' warehouse, which has a frontage of 300 feet, a depth of 90, and a height of 100 feet, and cost £60,000, and Samuel Mendell's, are amongst the principal of those structures for which Manchester is so famous; yet, in all probability, they will be eclipsed in their splendour by future enterprise. The Free-trade Hall is one of the finest buildings of modern times; it is a Lombardo Venetian composition, with frontage of about 160 feet by 75 height, having a spacious piazza from which the great hall—longer by 4 feet, and wider by 6 feet, than Exeter-hall—is approached. We had an opportunity of hearing its acoustic properties tested at a grand concert of sacred music, and can bear testimony to its excellence of construction. It cost £40,000. As a proof of the rapid increase in population, we may mention that the returns of 1851, compared with those of '41, were—for the city alone—in excess 74,207, and during the succeeding decade it has been in proportion. Similar causes to those alluded to at Liverpool, Oldham, and Rochdale, affect the employees at the cotton factories here, as may be inferred from the following official returns recently issued:—

"Sixty-nine factories, works, &c., were running full time with full complement of hands, sixty-one were running full time with *part* only of hands engaged, seventy-one were running *short* time, and fourteen *stopped altogether*. Of 47,478 hands who are usually employed, 26,306 were working full time, 14,195 short time, and 6,977 were wholly out of employment. This return varies but very slightly from the previous week, and the subsequent ones also."

In concluding this notice, though we mean to say something more *special* of Liverpool presently, we take occasion to mention, that the more frequent is our intercourse with the English people, the more friendly and earnest are their expressions for the extension and maintenance of the *entente cordiale* with the Irish; and the more candid and general the avowal, that until comparatively recently that misty obscurity that hitherto intervened and prevented a reciprocity of appreciation had not even been partially removed. Let us hope, however, that as time progresses, "the partial" may become "complete," that sunshine will gradually dispel the darkness, and that the great facts that English and Irish all work for *one common purpose* in the field of toil, that they live under the same Regal dominion and constitution, speak the same language, and that their national and commercial interest are identical, will contribute to this most desired end.

VIEW OF 50-TON ROLLING CRANE AT DUNBAR'S DOCK, BELFAST.*



Scale—28 feet to an inch.

* Described in the *DUBLIN BUILDER* for April 15th—see page 90.

* See page 47.

THE MANUFACTURING CAPABILITIES OF GALWAY.

Our recent visit to "the citie of the tribes" fully convinced us that her great and numerous industrial resources were as yet but in a very embryo state of development, and the mine of wealth that especially presents itself in her water power of unequalled and unfailling capacity was hardly fully understood, or at least was not sufficiently appreciated. Our remarks on this and other topics connected with the progress of the town, formed a subject for favourable comment in some of the local journals, and were freely accorded a space in their columns. Desiring to reciprocate this, and to aid in "the good cause" we afford publicity to additional facts and arguments, by quoting the following from the *Galway American*, a new claimant to public favour, and to which we wish a prosperous career in its utilitarian mission. Comparing the cotton manufacturers' facilities presented by Galway—by reason of her geographical position—before those of towns elsewhere, our contemporary says:—"A sailing vessel, carrying cotton—all things being equal, wind and weather—would be three days nearer Galway than on her route to Liverpool; but there might be ten days, even more, of difference, for ships have been several weeks beating in and out of the channel against adverse winds; whereas, no such occurrence could happen to a sailing ship making the harbour of Galway. So much for time in the transmission from America of the raw material, and in the sending back of the manufactured article! When the cotton arrives at Liverpool, it must be again transferred by rail or canal to Manchester—additional expense and delay—and the same inconvenience will recur as regards the fabrics for the foreign market. Even our Belfast friends and manufacturers would have to undergo a portion of those draw-backs in the transmission to Galway, the shortest and cheapest route to their *American* market.* Galway would not be confined to the manufacture of cotton alone. Connaught is a province where flax can be grown of as fine quality and texture as in Ulster. Oranmore, some years ago, was a great yarn market—the great yarn market of Ireland; and long before steam boats or railway trains were dreamt of—long before that boiling tea kettle, of which we have read, suggested to the fruitful brain of Genius the utilisation of steam as a motive power—the bleachers and small manufacturers of the south of Ireland used to visit the great yarn market of Oranmore, which lasted a week, with their horses and carts, for the purchase of that raw material which Galway, if proper exertion be made, can again produce."

And adding with reference to "water power"—"Lough Mask is 85 feet above the level of Lough Corrib, and affords a horse-power of 1,750, available for mill purposes, at Cong—old, romantic, religious, stored, kingly Cong. At Galway, where factory sites can be obtained on leases for ever, the minimum supply of water is 120,000 cubic feet per minute, and the horse-power for manufactures 2,320. . . . Water power will be the first material pressed into service, because it is the desideratum of manufactures.—The only real difficulties are the effects of ignorance, prejudice, and apathy. Probably the available water power may be estimated over 1,000,000 horse power, distributed into every part of the country; and, except what is used for corn mills, not more than 3,000 horse-power is now actually at work. Truly the neglect of the water power of this country is the greatest of follies. The people are, to a great extent, (outside the province of Ulster) only two classes—the rich, who are above availing themselves of the advantages offered by manufactures in this country, and the poor, who have no money. There is, however, even in Connaught, a middle class, who have each some capital—from £5 to £50, and in some cases £500. They could, by availing themselves of the Limited Liability Joint Stock principle, get up companies. We warn the merchants of Ireland against the course they are now indulging in. We would encourage every man who has £1 to invest, to employ it at home. We distinctly state that no hindrance stands in the way of Ireland's success, except such as her own people may remove at any moment. Canada, Australia, New Zealand, Queensland, and every other country to which our people are emigrating, would soon rank inferior to Ireland if the country once began to stir in commercial activity, which can never be the case so long as 1,000,000 horse water power remains unavailed of."

OPENING OF DR. SULLIVAN'S NATIONAL SCHOOLS, HOLYWOOD.

DR. ROBERT SULLIVAN, of the National Board of Education, a man of world-wide fame in connection with the educational movements and educational works, having resolved to erect and endow public schools in his native town of Hollywood, County Down, carried out his determination by having a very handsome building, for school purposes, erected in the leading street of the town, in a most prominent position; the design being by Messrs. Lanyon, Lynn, and Lanyon, the eminent architects, and the work being executed by Mr. Ross, builder, Belfast. The building is in the style of the twelfth century, comprising nave and transept, with a tower at one end.

* On this point the warmest advocates for Galway's claims must concede that current events materially change the previous state of affairs.

The material used in the construction of the work has been brick of different colours; placed with much artistic taste; the window-frames being of cut stone, and formed after the model of church windows. The lower floor contains the boys' school-room, with class-rooms, and in a wing of the building, the infant school. Convenient to the door of the infant school is the entrance to a stone staircase in the tower, and these stairs lead to the female school, which occupies the same space in the second floor that the male school does beneath. The rooms are all lighted and ventilated in the most admirable manner, the light being quite as good within the schools as outside in the open air. The desks, of which there are eight in each school, are formed on the same plan as the Dublin Model Schools—the seats in the female school being a great improvement on the old style of forms, as each pupil will have a separate seat for herself, formed of a cast-iron pillar fastened in the floor, with a round top of wood similar to that of which the desks are made. Seven of these seats are appropriated to each desk; so that fifty-six pupils can be seated in each of the schools—male and female; and this will on the tri-part system, afford accommodation in each room for 178 scholars. The infant school-room is at present fitted up on a different principle, it being evidently intended to seat the little ones entirely on a gallery. The appearance of this room is not so good as that of the other two, and would seem to be more applicable for a class room for the boys' school than for being devoted solely to the purposes of an infant school. Attached to the schools are two large and commodious playgrounds—one for the boys, and the other for the girls and infants. The entire premises are most complete, with the one exception, that of the infant school-room being too small; and they present a very pleasing appearance in the town, to which they will form an ornament as well as be of great utility.

The schools were publicly opened on Monday, 28th ult., at ten o'clock. The numbers were very large, and gave sufficient proof of what may be expected to attend when the schools are in fair working order.—*Saunders.*

SANITARY MATTERS.

THREE of the Dublin operative trade societies held meetings during the past month—to sustain the movement—for a satisfactory legislative enactment on the important subject of *perfect* registration, with a view to sanitary reform. The regular house painters met under the presidency of Mr. James Haughton, J.P., on the 9th, and after being addressed by the following members of the committee, Messrs. J. M'Evoy, E. W. O'Mahony, Dr. Metge Barry, J. J. Lyons, and Mr. Ward, the energetic president of the trade adopted a petition to Parliament, praying for the extension to Ireland of an efficient system of registration by offices—not of the police or military forces of the kingdom—on the 15th. The bricklayers, of the Halston-street branch society, met in the Temperance-hall, Halston-street. At the special desire of the society, conveyed by a deputation, that unwearied and indefatigable advocates of social reform, Mr. James Haughton, was called upon to preside. Dr. Hillas, recently acting as medical officer of health in one of the London sub-districts, proved a most valuable addition to the committee's platform. In his address he declared, as the result of his own personal experience and investigation, that Dublin was not only more uncleanly and unhealthy than London and English cities generally, but that it sunk below Constantinople itself in the sanitary scale. Dr. Metge Barry, Messrs. E. W. O'Mahony, J. Mackle, Kildahl, Lyons, and J. M'Evoy, addressed the meeting in succession. Resolutions similar to those adopted at the painters and other trade meetings, were passed; and further, it was resolved that a deputation should wait upon the Irish Executive to submit the strongly-felt opinion of the citizens of Dublin against the employment of the constabulary as registrars; and in favour of the extension to Dublin of the system of publication now carried out in London and the chief cities in England. On the 24th the regular house carpenters met at their fine and commodious hall in Lower Gloucester-street. The extraordinary severity of the weather prevented a numerous attendance. Mr. James M'Cormick presided. After the meeting had been addressed by Dr. Metge Barry, Mr. M'Evoy, and Mr. E. W. O'Mahony, the petition to Parliament adopted by the other trades was unanimously adopted, and means taken for its being numerously signed. Afterwards it was resolved to adjourn the meeting to the evening of this day, in order to afford the trade generally a better opportunity of taking part in proceedings of so much importance to them individually and collectively. We hope, in our next publication, to have to record further progress and success to this movement.

The wonderful oil-wells in Pennsylvania, to which we (*Athenaeum*) lately alluded, are rivalled, if not surpassed, in their producing qualities by those in Canada. According to the latest accounts, the outpouring of these appear to be almost illimitable. One, rising from a depth of 284 feet, yields 1,000 gallons of petroleum hourly; and another has poured forth 70,000 gallons daily since the 16th of January last.

THE OPENING OF THE LONDON EXHIBITION.

THIS day the ceremony of inaugurating the second great International and Decennial Exhibition takes place. The officiating principals are the Duke of Cambridge, the Archbishop of Canterbury, the Lord Chancellor, the Lord Chamberlain, Lord Derby, Lord Palmerston, and the Speaker, Royal Commissioners appointed by Her Majesty, who is precluded from presiding, owing, as may be inferred, to the recent bereavement. No doubt, however, all passes off with comparative *ecclat*, and many members of the royal family, and the *élite* of "town society," together with a host of distinguished visitors from the provinces, are present. The Duke of Cambridge, after the National Anthem shall have been sung and an address delivered by Lord Granville, will read reply to the latter and declare the Exhibition opened. As the conductor of this journal has proceeded to London specially to witness the ceremony, a full and original account of particulars will be given in our next No., and he has to acknowledge the courtesy of the committee in according press favours for that purpose. The ceremonial is announced to be accompanied by a monster musical display, under the direction of Mr. Sainton as conductor, some of the greatest artistic celebrities assisting. The following is the ode composed by Mr. Tennyson, poet laureate, to be chanted:—

Uplift a thousand voices full and sweet,
In this wide hall with earth's inventions stored,
And praise th' invisible universal Lord,
Who lets once more in peace the nations meet,
Where Science, Art, and Labour have outpour'd
Their myriad horns of plenty at our feet.
O, silent father of our Kings to be,
Mourning in this golden hour of jubilee,
For this, for all, we weep our thanks to thee!

The world-compelling plan was thine,
And, lo! the long laborious miles
Of Palace: lo! the giant aisles,
Rich in model and design;
Harvest tool and husbandry,
Loom and wheel and engine,
Secrets of the sullen mine,
Steel and gold, and corn and wine,
Fabric rough, or Fairy fine,
Sunny tokens of the Line,
Polar marvels, and a feast
Of wonder, out of West and East,
And shapes and lines of part divine!
All of beauty, all of use,
That one fair planet can produce,
Brought from under every star,
Blown from over every main,
And mixt, as life is mixt with pain.

The works of peace with works of war.
O ye, the wise who think, the wise who reign,
From growing commerce loose her latest chain,
And let the fair white-winged peacemaker fly
To happy havens under all the sky,
And mix the seasons and the golden hours,
Till each man find his own in all men's good,
And all men work in noble brotherhood,
Breaking their mailed fleets and armed towers,
And ruling by obeying nature's powers,
And gathering all the fruits of peace and crown'd with all her flowers.

INDUSTRIAL.

The Lord Lieutenant concluded his eloquent address, at the evening meeting of the Royal Dublin Society for the distribution of prizes to the successful competitors at the spring agricultural show, in the following terms:—"We know that in the last twenty years, and, notwithstanding the drawbacks and vicissitudes to which I have referred, and of which latterly we have had experience, the stock in Ireland has increased in value within that period of twenty years from twenty-one millions to thirty-three millions; and with respect to quality, I think it is very probable that almost the worst animal in the yard to-day was as good a one as the prize animal of the same period back. I trust earnestly that the varied excellencies of these exhibitions, the numbers by which they are attended, the patronage by which they are honoured, the skill by which they are fostered, may all progressively advance. It is true that we cannot warm our skies with unclouded sunshine, we cannot mature unfailing crops, we cannot guard our sheep and cattle from all kinds of disease, but we may continually furnish fresh aids to man in the struggle which he must always have to keep up with nature; we may give him the largest command over her bounties, and make difficulties themselves the spurs to industry and the elements of his success."

NATIONAL ASSOCIATION FOR THE PROMOTION OF SOCIAL SCIENCE.—We understand that the Corporation of the City of London have granted the use of Guildhall, with the courts and offices adjoining, for the purposes of the sixth annual meeting of the National Association for the Promotion of Social Science, to be held in London from the 5th to the 14th of June, next. A strong feeling is exhibited in the City in support of the meeting, and the Fishmongers' Company, with their accustomed liberality, have given fifty guineas to the fund that is being raised to defray the local expenses.

ON PAINTING.*

PAINTING literally means the skilful application of colours in the representation of natural objects. The use of colours or dyes as decorative adjuncts is as old as mankind, for colour is an element of beauty, a quality sought for and appreciated only by human beings. In a primitive state of society we have the tent and other coverings painted; even the skin is adorned with colours. The skilful application of colours in harmonious combinations was reserved for modern painters, who are fortified by science—an advantage not enjoyed by the ancients, who seem to have produced their good effects from approved experience, guided by traditional secret methods. This is evident from the facts that the art was kept in the family, and followed from father to son; and this methodical proceeding existed until the beginning of this century, when we slowly followed up the suggestions of Newton on the prismatic spectrum, which has resulted in the establishment of the fixed laws of harmonious colouring.

Painting renders our emotions and acts in a universal language. It embodies in one view the past, present, and future; it fixes action and passion for ever. It perpetuates the beautiful and the good. It requires a considerable amount of art education to appreciate a work of art, for a judge of what is natural is not thereby a judge of art. We must judge or see artistically, that is, with a knowledge of the means at hand to embody the thought; we shall then be better fitted to distinguish between the several shortcomings, as felt in the three conditions of a painting—namely, the technic or mechanical, the æsthetic or artistic, and the phonetic or story. Of course every one decides according to his education or capacity, therefore every one with a mean capacity will be taken with the low, like George IV. with his Dutch pictures, and those with kindred instincts with donkeys and dogs; and as we still find the simply pious will be quite gratified with the terrible likeness of some ecclesiastic, or a scriptural horror from Mount Athos. But painting, as such, is the art of exhibiting colours to the best advantage, subject to the ultimate use and vehicle employed. These are, of course, independent of the other specialties of the art or modes of expression, such as outline, light and shade, arrangement, &c., of the thing represented; these united make the sum of the painting; but the art of painting, like acting, is a mimic art, and as such bears the same relation to the formative arts of sculpture and architecture, as acting does to the phonetic arts of music, eloquence, and literature. Its range and kinds of imitation being more extended, if not positively infinite. It is the mimic of every other thing and thought, exhibiting in its development the most refined intellectual ingenuity, for legitimate painting rejects all tricks as aids either in relief, artificial lights, or noise. Disdaining these, it produces its effects through purely inventive means, beginning with an outline, which has no existence, and upon a simple surface to shade and colour all imaginable qualities and impressions.

Of the specialty, imitation, it must be considered only as a means of art, not art itself; it must, too, be used with great judgment—too little or too much will exhibit the want of discrimination in the artist.

Photography, at best, is but a stern chronicler of facts—mere episodes; but it is not art—it is the combined result of chemistry and mechanism, and it is wonderful in its effects, but it is not art, nor painting, nor sculpture, nor architecture. Painting is the expression of our sympathy with what we represent, our partiality and love suggest the treatment; it is not wholly objective, like photography, but takes the bent of our individual feelings, modifying these with our inventive associations—a condition of mind, the privilege only of thinking beings. Moreover, a picture must somehow have completeness and an unity within its bounded limits. It may not have its other part outside; it must have a beginning, a middle, and an end; it must have all the parts which constitute a whole and none of these to belong to anything else. It must satisfy the mind by filling it. Invention is the aptness of giving new combinations of thought. The power to do this is increased in proportion as we make the acquaintance of the thoughts of others, to be found in their works. They are at least suggestive, and are to be found, as in Nature, in music, eloquence, acting, and literature; so by studying these we place ourselves in communication with the authors through their works; thus placing our minds in contact, new ideas being the inevitable result; in this fashion Nature produces endless variety, simply by studying others through ourselves. Give to these thoughts sequence and unity, and they become our own, and may be pronounced original. We must take care the subject is suited for pictorial representation, then, with an accomplished hand, the work may proceed. In order to do this effectually, that is, to produce a picture, it is necessary to master the following means of art. The painter must draw with gracefulness and ease. He must feel and understand the essential properties of perspective, and must draw

* Substance of a lecture delivered at Mechanics' Institute, on Monday evening, 14th inst., by Henry Macmanus, Professor of Painting, R.I.A.; Head Master, Royal Dublin Society's School of Art.

with readiness any object which meets his view. He must be exquisite in his appreciation of light and shade, and know how they come to assume certain shapes. He must understand the value and treatment of drapery. He must be acquainted with the structure of animals, and that part of anatomy called pictorial. He must know how to paint and combine colours so as to produce harmonies of any kind, from the highest light to the lowest shade, and, if possible, to account for them. If the painter would go farther, he must add science to the above, and he would then be qualified to design, which is the highest, as well as the simplest, condition of art. He must know for this purpose plain and solid geometry, the laws of proportion in relation to the figure, the balance and action of animals. He must project these geometrically, else it is no design; also, in order to design, he must be acquainted with the æsthetic qualities of chiaro-scuro and composition. He must be a clear, keen, and close observer of what passes before and around him, and to note what passes within himself on such occasions. To improve his own invention he must be pretty conversant with the inventions of others. He must study and master all styles hitherto known, with their history, peculiarities, and mode of production. He must sympathize with everything. He must be a sagacious physiognomist. He must be acquainted with the customs and costumes of all times and places. He must be a correct architectural draughtsman. He must appreciate the dignity and character of sculpture, and be able to render it pictorially. He must know distinctly the difference between drawing and design, and to combine them, as in their union only is high art known. He must paint vegetation and all elements, earth, fire, water, and atmosphere of all kinds. If a picture must be a whole, complete in all its parts, then it cannot form a part of a scheme of ornamentation, for a picture is as much out of place in ornamental embellishments as an incomplete production would be if put forward as a picture. Atmosphere in a picture is an indispensable feature, and is equally a defect in ornamentation, because it destroys the propriety and sense of order and security proper to the architecture which it is meant to adorn and in no way to supersede; it follows, therefore, that every object in the ornamentation must have reference to the entire effect. Painted figures with a plane back ground are proper enough, but vignette landscape or anything with atmosphere is simply absurd, for the reason already stated—they seem to lead one to look out through an irregular hole in the wall of the house, the effect being as incongruous as the impression is uncomfortable. But we have no objection to the sky appearing in the ceiling, provided it is framed by architectural arrangement, for the sky or opening relieves one of the sense of weight, whilst, on the contrary, a disagreeable effect is produced by really, or seemingly, heavy ornamentation. We may see by this time that the painters of ornament must be able to perceive and to carry out the intentions of the architect by seizing the idea where the architect has left off, and carrying it to the highest degree of beauty and repose of which the decorative arts are capable. A picture is quite different; the work is of a kind that it may be seen anywhere without disturbing our sense of propriety—a picture is, as it were, a distinct work bound by its frame in one volume, and may be put on a table or on the wall. It descends from this independent eminence when it is found only to illustrate something else, and can't explain itself without reference to its original promotor. The earliest painting was water-colour, flatly filling in an outline or shadow with black, red, or white. After this a gluten was used to fix the colour from coming off. This is still called body or tempera painting. Fresco buono is water-colour put on whilst the plaster is wet; they then dry together. Fresco secco is water-colour put on the hardened plaster; it is made wet again with water and the paint laid on; the plaster, when drying, once more crystallizes and holds the paint. Water alone is the vehicle in both forms of fresco. Water-colour proper, is such as we are accustomed to, has gum mixed with the colours to fix them. Wax is used for painting in many ways. One mode is, to coat the surface with the wax, and to paint it in simple water colour; when these dry, heat is applied to the surface to melt the wax, which soon incorporates with the colours. Another way is to make a maguip of the wax, and use it with turpentine as a medium or flux. When varnish is used as a medium, the colours are ground in turpentine, and in some cases slightly tempered with oil to prevent drying too quickly. When oil is used as a vehicle, the colours are ground in oil either raw or boiled, varying with the siccative qualities of the pigment or colours used. The scientific novelty of the day, as applied to art, is silica, or water-glass painting; it bids fair to surpass fresco painting, and to supersede that famous mode of rendering the power of a painter. Cromolithography is a new mode of reproducing works of art by the skilful printer, the principal qualifications being a nice eye for colours and precision of registering; in the printing, each tint takes a separate stone, and by this mode most astonishing copies are made of pictures—so close in resemblance that they puzzle the most scrutinizing. The painter must know critically the difference between what is matter of law or principle, and matter of taste or choice. He must school his mind to discern the subjects or the view of the subject proper to his special

pursuit and practice, so as not to take up a subject more properly the business of some other specialty of the fine arts. It will give him quiet satisfaction if he can learn to detect, and perhaps expose, false criticism, which never distinguishes between matter of law and of taste, but cleverly confounds the one with the other. The ordinary literary and scientific education is not of so much advantage to the painter, who had better study things and lose as little time and patience as possible with words. He had better be continually on the wing in search of the true and the beautiful, fancying new combinations, and turning everything to his own art account, and so enrich his work with teeming thoughts.

PROFESSOR SMIRKE'S LECTURES ON ARCHITECTURE AT THE ROYAL ACADEMY.—LECTURE III.

In my last lecture I touched upon a few of the more interesting objects on the shelves of the British Museum that have special reference to architecture. The subject is well-nigh interminable; for I doubt whether any library in the world equals that in the British Museum, either in extent or value; and I purpose, on a future occasion, to pursue the subject, and continue, in a cursory way, to direct your attention to such other works as seem to me best calculated to impart instruction or to excite interest in the minds of those engaged in the pursuit of architectural knowledge. But I will this evening call your attention to another library, which may be in some sense regarded as a public library, but which is very different, no doubt, both in respect to extent and value, from that to which I have already adverted. I refer to the library which forms an important part of the Soane Museum. Being a library wholly formed by an architect, and bequeathed by him in trust for the express use of architects, it seems to have special claims on my attention here; and those claims are enhanced by the long connection that existed between this Academy and Sir John Soane.

It is by no means my intention or desire to constitute myself the apologist or the critic of that, in some respects, remarkable man. With his personal peculiarities, with his temper, and disposition, with his foibles and eccentricities, we have nothing whatever to do here. Let those who have no defects of temper or of character throw the first stone. I certainly will not venture to do so.

As an architect he was, undoubtedly, in some respects, remarkable. He sought for novelty and originality in whatever he did; and, not unfrequently, he succeeded in attaining the object of his search.

He was very deficient in greatness of style, delighting rather in small conceits and whimsical contrivances to produce effect. Though he can hardly be said to possess genius in the higher sense of that word, he had much *ingenuity*. He, moreover, had some aspirations after the attractive but hazardous quality of the picturesque in architecture.

If I had declined, on the present occasion, to be the censor of his personal peculiarities; so I would equally refrain from investigating his *motives*; which may or may not have influenced him to devote his museum and library to its present semi-public purpose. Let us take the fact as we find it, and admit at once that the bequest was a liberal contribution towards the education of his professional posterity. It pleased Sir John to apply for and obtain the sanction of Parliament for the formation of a trust imposing on the trustees certain very clearly defined duties; which duties the trustees, by accepting their office, became morally and legally bound truly and faithfully to perform,—at all events until the same authority that imposed them shall have thought fit to modify or annul them.

I have ventured to say thus much publicly to you because the trustees have not unfrequently been made the subject of considerable misrepresentation. Sir John evidently desired to limit the examination of his collection to those only who studied architecture, either as professors or amateurs; certainly not intending to throw it open to indiscriminate view. That such was his intention is conclusively shown by the particular conditions which he so carefully imposed; and a trustee, like an executor, can by no means depart from, or even vary, a single condition laid down by the testator, without incurring the very serious charge of neglecting or exceeding the powers of his trust.

The museum, properly so called, will not engage our attention this evening. Those who have made themselves acquainted with its contents know that they are of a very miscellaneous character, comprising some objects of great value and interest, and some of a most trivial and insignificant nature.

It is to the library only that I am now about to advert, avoiding as far as may be possible such objects as exclusively concern the mere antiquary, inasmuch as the time at our disposal is very limited; and as the special purpose of these lectures is, by the very constitution of the Academy, confined to such objects as are calculated to further the professional education of the students. This same consideration excludes us also from advertizing here to the rich stores of mechanical knowledge which are to be found on the shelves of this library.

That Sir John was perfectly aware of the high importance to every architect of a thoroughly practical knowledge of building is sufficiently apparent from the contents of his library, and was repeatedly dwelt on by him in the lectures which he delivered from this place. But

it is to his books on architecture as a fine art that I am bound here to confine my attention, and it is certainly to the works of this character that the library owes its chief attraction, and from them it derives its chief value. It comprises nearly every architectural publication of value that appeared during his own professional career, down to the period of his death in 1837, as well as a large store of books of early date.

Among the earliest in the catalogue you will find Alberti's "*Libri decem de re Edificatoria*." Of this well-known book there are here six editions, but among those I do not find the original and earliest Latin edition of 1512. A folio edition, in Italian and English, appears to be that which its owner read with greatest ease, as it contains many marginal notes by him, and other evidences of his having carefully read it.

On a former occasion I have, from this place, expressed my admiration of Alberti's works at Rimini and elsewhere. His church of San Francesco is in the best style of the early Renaissance, before it had degenerated into the commonplace manner of the following century. It is worthy of note, that Vasari touches but slightly and with some apparent indifference upon the work, although he must have been especially familiar with it, seeing that Vasari dwelt some time some time in Rimini. In truth, Vasari, excellent he may be as a biographer, had, as an artist, but little genius; and he was unable to appreciate the somewhat dry, antiquated manner of Alberti. That artist not only possessed undoubted talent as a practical architect, but remarkable merit also as a writer. His book is full of valuable remarks, and attests at once his good sense and his erudition. What is also specially worthy of our observation is that he appears in an eminent degree to have united a minute and accurate technical knowledge with a fine æsthetic feeling. The distinction which he draws between *beauty and ornament* is, I think, most just and true. "Beauty," he says, "is something lovely which is proper and innate, and diffused over the whole body; whilst ornament is something superadded, or adventitious rather than innate."

Alberti, and I might say Alberti's school,—the school of the early Renaissance,—well understood the distinction between beauty and ornament. The vulgar of all ages, countries, and ranks, are apt to think that ornament means beauty; and that in order to be beautiful we must needs be lavish in ornamentation. This great error leads directly to that excess which degrades art, whether it be architecture or her sister arts. It was excess which marked the decadence of Roman and of Mediæval art; and it was the disfigurement of excess which stained the purity of the early Renaissance.

I speak, as it is fitting and becoming that I should speak, with great reserve, and in the most general terms, when touching on the state of our art in the present day; but I think I am only fulfilling a plain duty in denouncing the tendency to a meretricious use of ornament, which may perhaps be discerned amidst the conflict and rivalry of prevailing tastes.

No doubt, in this country, the greatest diversity of feeling exists in matters of art: so impatient of all restraint is our countrymen, that there is no privilege that he more freely exercises, than that of differing from his neighbour in opinion;—and in *taste*, especially, we all proverbially and most widely differ.

Some will teach us that ornament, alone, is architecture, and that a building without ornament is but handicraft work, necessarily devoid of art, and beneath an artist's attention; whilst others will look with equal contempt upon all mere ornament, as a frivolous and puerile inutility, altogether unworthy of any serious regard. I believe that in this case, as in most others, each of these extreme opinions is equally remote from the truth.

At all events I am confident that, however we may be led away, by our imitative habits, into occasional extravagance and unseemly excesses, the natural bent of the English mind is towards moderation, in the use of ornament.

Flagrantly as we may sometimes err, and wild as may be the caprices we may sometimes indulge in; still, in the main, the tendency of public taste is of a plain, grave, and practical character; and I am very greatly mistaken if, when we regard—either on this side of the Atlantic or the other—the overloaded piles of enrichment which constitute the pretentious façades occasionally presented to us for our admiration, by far the majority of us fall into the unimpassioned and calculating inquiry of "*cui bono?*" Not only does this excess offend, as it appears to me, the naturally-simple taste of this country, but it is plainly at variance with the lessons daily taught us by our English climate. Moistness is the normal condition of our air, and clouds are the normal clothing of our sky. For at least two-thirds of the year our buildings are constantly liable to be drenched in rain, whilst for the remaining third they are subjected to the still severer trials of frost. And thus, in this matter, the dictates of common sense are in perfect harmony with the suggestions of our natural taste. I perceive that the short and pointed sentence which I have quoted from Alberti has led me into a somewhat verbose diversion. In this respect I am failing to profit by the example of my author, whose style of writing is as free from verbiage and prolixity as his style of architecture is exempt from frivolous and intrusive ornament.

The next book which comes to hand is of a very different character. Indeed, one is sometimes almost led to feel surprise how books so widely asunder in their character and quality can submit to the close and constant juxtaposition that they are subjected to on our bookshelves. The book, I say, which I now take up is that of Dieterlin's "*Architectura de Constitutione, Symmetria, ac Proportione quinque Columnarum*," published at Nuremberg, in 1598. It bears sad testimony to the rapid deterioration of art, and to a special proneness to a corrupt excess among our German neighbours.

In the extravagant and grotesque scrolls and cartouches which abound in this volume, we see at once from whence were derived the strange ornaments of our Elizabethan and Jacobite styles; although these styles, as displayed in our own country, might lay claim to the character of simplicity and sobriety by the side of these wild enormities of Dieterlin.

In a former lecture I expressed my belief that much of the degradation of architecture in the seventeenth century might be due to the practice at that period of the same individual pursuing all the three sister arts. Whilst any remnant of the purity of early art and of the good sense of the early artists survived, this combined cultivation of the fine arts was not attended by any evil consequences. On the contrary, the arts lent to each other that mutual aid from which they derived mutual advantage; but it was when the torch of genius had died out and our art fell into decay, that the dangers consequent on this union began to develop themselves. When men ceased to understand the true scope of each art, and to recognize their respective limits, they lost the power of designing well in any art. The sculptor and the architect became merged in one artist, who was fain to build up his clouds and to construct celestial glories as if he was erecting a stone wall: whilst, on the other hand, he designed buildings wanting many of the essential attributes of real architecture,—buildings, indeed, that could only be made to stand by dint of ties and other hidden mechanical contrivances. The physical impossibility of executing in solid materials the architectural vagaries of Dieterlin, as exhibited in the designs before us, is sufficient evidence of his unfitness to design architecture. He seems to have been utterly regardless of the great fact that architecture is a *constructive* art, subject to static and dynamic laws. Far different was it in the good times of the previous century. I believe we may defy the most scrupulous critic to point out in any one picture of Raffaello's, of Giulio Romano's, or of Michelangelo's, a single building or fragment of architecture which might not with perfect facility be executed, line for line, in stone or timber.

I touched with great reserve on the confines of my neighbours, and should regard it as presumptuous on my part to affect the critic in the sister arts; but still I would venture to urge on the students of the painting school, that, in the architecture which they may deem it proper to introduce in their pictures, they should never be unmindful of the *practicability* of the structures they represent. It appears to me that it is just as incumbent on the painter or sculptor to give to his building a suitable and sufficient base, as it is to place his figures properly and naturally on their feet: the error of representing an impossible structure is, in its degree, just as great as that of representing a man in an impossible attitude.

I must, however, at once revert to the Soane Museum. I find on the shelves a volume of drawings, chiefly executed on vellum, described in its manuscript title as "*Disegni di Architettura del Anno 1400*." It is a curious volume, the history of which I know nothing, although of its authenticity, for various reasons, there can be, I think, no reasonable doubt. The execution of the drawings is very indifferent, and there is little attempt at correct delineation; and yet there is not wanting freedom and a certain amount of manual and almost artistic dexterity. The volume seems to do for the fifteenth century what Willars de Honcourt's book of drawings, recently submitted to the Institute of British Architects, does for the thirteenth century.

There are between sixty and seventy drawings, but none bear any titles, and they are probably original studies or exercises in architectural and ornamental design. A very little correction and modification would make some of these designs elegant compositions. I have upon a former occasion observed upon the absence of the regular orders of architecture in the early works of the Renaissance. This volume remarkably corroborates my statement. There is not, I believe, a single instance in the book of a dominant order determining the proportions of a building. Columns there are in abundance, and of a great variety of whimsical forms; but in all cases, I believe, each tier of columns and arches represents a separate floor. A constant use of arches and niches, a prevailing habit of panelling and enriching the panels with arabesques, as on the sides of square columns and pilasters; and a habit of covering all vacant spaces with square and circular panels and medallions, filled in either with slabs of coloured marble, or with foliage generally in somewhat flat relief; these appear to be the prevailing distinctions of the quattro-cento style, which stand out with very marked differences from the style immediately preceding and succeeding it.

(To be continued.)

ON THE CONSTRUCTION OF THE MALAHIDE VIADUCT.*

A few hundred yards from Malahide station, the Dublin and Drogheda Railway crosses an estuary or bay, partly on an embankment, and partly by means of a viaduct 577ft. long. At the original construction of the line this viaduct was built of timber, in eleven spans of 52ft. each.

The obstruction to the free flow of the tide presented by the embankment caused a very powerful current to rush through the bridge, and it was very soon found that the soil into which the piles were driven was rapidly washing away, and the bridge settling down in consequence. To arrest this evil, large quantities of stones were from time to time shot into the stream, till a bank was formed averaging 130ft. broad by 30ft. high, extending in continuation of the embankment right across the tideway. By this means, and by constantly packing up the rails, in some places to nearly 3ft., the viaduct was made to do its duty until the year 1859, when serious signs of decay becoming apparent, the directors ordered their engineer, Mr. Marcus Harty, to prepare plans for the reconstruction of the bridge. As this was a work presenting some engineering difficulties, and involving a large outlay, designs were also obtained from some English engineers of note; but, none of them having been adopted, it is unnecessary to notice them any further. In arranging the design for a new viaduct three things had to be mainly considered, viz:—

1. The maintenance of the traffic during the execution of the works. 2. The widest possible tideway; and 3. The most durable material. The first and second considerations, together with the relative cost of the superstructure and piers, decided the number and length of spans, for these had to be so arranged that the piers might be constructed and the new girders laid without endangering the old foundations; while the order in which the new structure should be erected was determined with reference to the least obstruction of waterway.

It would appear, at first sight, that the easiest plan would have been to take down one-half of the old bridge first, build the new piers on the site of the old ones, and complete the superstructure of one line. By this means much complication in arranging the traffic and all danger of obstructing the water-way would be avoided. But it was feared that the old piers could not be disturbed with safety; that the hold of the piles in the ground was so uncertain that any disturbance of the stones might loosen the piles to a dangerous extent, and consequently any works performed on one half the pier would seriously endanger the other. The new piers were therefore placed in the water-ways. The first three spans of the bridge were to be completed—first for the down and then for the up road; all the old work taken down and the new water-ways cleared and levelled. The increased facility for the flow of tide thus obtained would enable four more piers to be built, the down line over them completed, then the up line, the old work again removed, and, finally, the remaining piers and superstructure laid in. As regards materials, Mr. Harty proposed two plans—one, stone piers supporting cast iron girders 26ft. span, with brick arches turned between them, and the road laid in ballast; and the second, stone piers supporting wrought iron beams 52ft. span, with the roadway laid on the top of them, on timber sheeting in the usual manner. The very much greater liability of wrought over cast iron to corrosion from the effects of sea water was very strikingly exhibited in the old bridge, where the bolts and straps securing the woodwork were deeply eaten away, even when the surface showed a good coat of paint, while the cast iron sockets and shoes, though unpainted, were almost free from rust. This fact induced Mr. Harty to recommend the first plan, but the strong prejudice which exists against the use of cast iron in situations where failure might lead to most disastrous consequences, swayed the directors to adopt the wrought iron superstructure. The first thing done was to prepare nine light travelling cranes. They were very ingeniously and cheaply extemporized by converting pairs of old engine wheels into turntables, fixing them on the body of an ordinary ballast waggon, and arranging on them a wooden framework and jib carrying an ordinary contractor's crab. At the same time stones for the piers were being delivered at the Dublin terminus, and, as the season was advancing towards spring, and no time was to be lost, six or seven quarries were laid under contribution. 1,708 tons of stone in all were worked up—calp for the rubble masonry and limestone for copings. The dressing of the stones was all done at the Dublin terminus, the piers being actually built up dry, the stones marked, transported to the bridge, and the piers again built up dry, but turned bottom up, alongside the line on the embankment, close to the viaduct.

The working drawings of the ironwork were also got out, tenders were invited from a few firms in Ireland and England, and the contract ultimately given to Messrs. Courtney, Stephens, and Co., of this city, the firm with which the author is connected. There was no contractor for any other part of the work, it was all executed

under Mr. Harty's personal superintendence; a great portion, however, was done by piecework, as will presently appear.

As soon as the various preparations were sufficiently advanced the works on the bridge commenced in March, 1860, by carefully straightening and levelling the roads to the exact lines they were to occupy in the new structure. Switches were laid in at both ends of the bridge to turn the traffic at pleasure to either line; signals were erected near the point levers for the guidance of the trains, the approach of which was notified as soon as they came in sight by the ringing of a bell fixed on the middle of the bridge. Over the site of each new pier a cross road was laid, projecting sufficiently far over the water on each side to admit of a crane standing clear of passing trains. The rails of the main line were nicked out, to allow the flanges of crane wheels to clear, and as the sheeting over the new piers had to be removed, the main line rails, where they happened not to be over the wooden beams of the old bridge, were strengthened by bolting short pieces of rail under them. Seven workmen's huts were extemporized out of third-class carriages, while the engineer took good care of himself in a snug office built on the north abutment in the castellated style, tastefully decorated with coal tar.

A siding was laid on the north embankment for the pilot engine, which remained in attendance throughout the work. Two boats and a boatman were provided, the latter stationed so as to be in readiness to render assistance in case of accident to the men, and life buoys were blaced on the bridge for the same purpose. In spite of every precaution, however, the author grieves to record that one of the men fell into the tideway, was swept away by the resistless current, and drowned; his body was not recovered for a fortnight. The rush of the water under the bridge was at times awful. Some idea of its force may be formed when it is stated that a dam, composed of about 4 tons of 80lb. rails, bolted together to form a boom, with stones and sods among them, was washed away on the night of May 4th; the ends of some of the rails may even now be seen, so tightly jammed among the stones and rocks as to resist every available means of recovering them.

Before describing the method of constructing the piers it is necessary to mention that the bank of stones thrown in to support the old bridge was assumed to be ample support for the new work, nothing more being required than to consolidate and level the base of the pier. A reference to the stereoscopic views on the table, will show that the pitching thrown in to support the old bridge had been piled round the base of the piers, forming thus two sides of a dam; the tide fell away very rapidly from the east side of the bridge, which, therefore, required no protection, and it remained only to arrest the shallow but rapid stream which was caused by the discharge of the pent-up waters of the estuary. This was done at first by a dam of sods kept down by rails and stones, but after the accident already described the following plan was adopted:—On the west side of the tideway to be dammed a curved track was cleared at low water, the ends resting on the pitching round the old piers, and the convex side turned against the pressure of the bay. A wall of sods was then built up in the track, and securely pitched with stones on both faces, the form of the sides and top being such as to impede the flow of the water as little as possible when once the tide rose too high for continuing the works.

This dam was, after all, only a very imperfect protection, as the water found its way through the loose stones in every direction, so that all the foundations had to be laid under water.

In preparing the site of the piers two plans were adopted. At first, the loose stones were removed to form a level bed at the proper depth, some 15in. below the general surface, and the edges of the hole thus formed were built round with stones set on edge without cement, the work being all under water. The space was then filled in with shivers mixed with iron turnings to concrete them, the whole being rammed down as long as any yielding could be perceived, by means of a five cwt block of iron. To prevent the ram splashing into the water a layer of stones was laid on the top of the real formations, and removed after the ramming was complete. Later on, however, this method was modified in favour of large flags laid in some 7in. below the bottom, of ashlar, and rammed down, as before, through stones temporarily filled in on them. The building of the edges with pitching was also discontinued until after the first courses had been set. As soon as a firm and level base was obtained a framework of old rails, being the contour of the base of the pier, was laid down, and after being adjusted at the proper level on a few blocks of stone, the intermediate spaces were carefully packed with flat stones all along under the rails, and the interior space filled in level with their upper faces; a grouting of cement being sometimes poured in, if the state of the water permitted it. On this foundation the first course of ashlar was laid, and the pier carried up very rapidly, the stones being taken down from their places in the pier on the bank, run on to the bridge in a hand lorry, and lowered very rapidly by two cranes, one working on the cross road, and one on the blocked up main line. Lewises were at first tried for slinging the stones, but subsequently abandoned for common chain hooks,

* Paper read at Institution of Civil Engineers of Ireland, by William Anderson, member. (For illustration see page 108.)

which answered equally well. Medina cement (Nine Elms) was used for the work set in water, or where it would be very quickly covered by the tide, and Roman or Portland for the rest. The piers are remarkable for having no plumbing quoins of any kind. They were built from centre lines stretched from a vertical post erected a few feet beyond the cut-waters of each pier. As the batter was in from every side templates were made for each course; the correct position of each in the length of pier being given by a standard length from the guide poles. Stone pitching was carefully packed all round the new pier to guard it as much as possible from the violence of the current. After the old bridge had been removed the water-ways were carefully levelled, the gain in tideway being about 35 per cent.

The first stone of the first pier was laid April 14, 1860, that of the eleventh on September 19, 1860, about twelve days elapsing between the commencement of each pier. During this time, however, a great deal of the old bridge was removed, and some casualties occurred, as, for instance, the dam of No. 2 pier failed on May 4, as already described; and on the 8th of the same month the increased rush of water occasioned by obstructing the first three waterways, caused a breach in the fifth, which took seventy tons of stones to repair; and on September 17 the dam of No. 11 pier gave way. There was also delay of about a month from the inability of the contractors to get the ironwork for the first three spans ready in time; so that, on the whole, it will be admitted that the work was done with very creditable rapidity, mainly due to Mr. Hart's admirable arrangement, great forethought, and unwearied personal exertion. It should also be remembered that all the works had to be arrested for the passage of every train, and that a great deal of the laborious work could only be done during the two hours or so of low water.

The abutments were originally built of stone, and very little alteration in them was necessary.

The cost of the rock ashlar, dressed at the terminus ready for building into the piers, was 14½d. per cubic foot; the same stone delivered dressed from the quarry 13½d. per foot cubic, and it was found that 10·7 cubic feet of dressed stone was procured from a ton of rough, the real weight of the stone being 13½ cube feet to the ton. The cost of transporting stone, building piers dry twice over, and finally setting the work in its place, could not be kept separately, as, from the nature of the case, it was performed in broken time.

The watermen did their work by the piece, the following being the cost of founding each pier:—

Removing dam from last pier, damming west end of old arch and maintaining same, filling and discharging stones and sods for dam from quarry, sinking old waterway for foundations of new pier, setting flags to near the proper level and guide post stones, covering flags with stone shivers, and gravel mixed with iron turnings, ramming down flags with five cwt. rams, removing shivers and stones, and helping to set up guide posts, getting down rails, levelling and centring them accurately, flagging among them in shivers, and iron turnings to level of rails, attending to masons to the completion of first course of ashlar on rails, packing under outer edge of ashlar base, packing round pier and east apron, loading bottom to pitching and slope of apron, loading and discharging all stone required from quarry—£15.

Bending rails to form of cut-water, and securing them to form of foundation; drilling and rivetting to plates at ends, and four fish rails, and two cross rails near centre—each £3.

Cutting rails for a cross crane road over each new pier, crossing square the up and down main lines, cutting flange gaps in main lines, and eight plates to go under them, including drilling—£1 10s.

When the rails of main line were unsupported and made beams of—per rail, 2s. 6d.

The two upper courses of the piers were of cut limestone, into which the cast iron wall plates for the beams were sunk.

As the new piers had to be built in the waterways, it follows that if the regular spaces were preserved the end spans would have to be either a half or one and a half times the old ones, but as so great a difference would have been inconvenient the first and last piers were placed so as to divide a span and a half into two, the new viaduct consequently consists of eight spans 52ft. and four spans 40ft. 2½in. The depth of the longer beams is 3 feet 6½ inches between the intersection of centre lines of lattice bars and flanges, or nearly one-fourteenth of the clear span, the piers being 3ft. thick at top. The shorter beams are reduced in depth in proportion to their length, so that in both the number of lattice bars is the same. Each span is composed of six beams, connected together by horizontal and vertical cross bracing, four beams being immediately under the rails of the two roads, and two beams under the hand-rails. Longitudinally the beams are connected rigidly on every alternate pier, resting immovably upon it, while the remaining piers are provided with expansion rollers, the upper flanges of the beams being merely held in position laterally by a joggle secured to one beam only. In order to avoid exposing a large surface to the action of the spray and sea air, the flanges of the beams are made as narrow and thick as possible,

while the lattice bars, in compression for the same reason, are made of thick bar iron instead of the more advantageous section of T, L, or E iron. In addition to the amount of material necessary to meet the strains, 1-8th in. thickness all over is added to the roadway beams to compensate for corrosion; the outer beams under handrails are in other respects of the same strength, in order to procure protection to carriages getting off the rails. The load on one of the larger road beams is thus estimated:—

	tons.	cwt.
Pitch pine planking 4in. thick	1	10
Gravel strewn over same	2	0
Rails and sleepers	1	10
Diagonal cross bracing	1	0
Beam	6	0
Passing load half a ton per foot	25	0
Total	37	0

37 tons uniformly distributed, being rather more than ¾ ton to the foot run, and for this load the strength of the flanges is adjusted, while, to meet the contingency of an engine running on a very narrow base with unduly loaded driving-wheels, the diagonal bracing is further strengthened to sustain a concentrated load of 5 tons travelling over the beam.

(To be continued.)

NEW PATENTS.

List of Letters Patent which passed the Great Seal on the 4th, 8th, 11th, 16th, 22nd, and 25th April, 1862; Messrs. Byrne and Lambert, agents, 4, Lower Ormond-quay, Dublin:—

C. W. Felt, for "An improved machine for setting, spacing, justifying, and distributing printers' type."

W. Welch, for "Improvements in marine screw propellers."

G. T. Bousfield, for "Improvements in machinery for attaching the soles of boots and shoes to the upper leathers."

O. Bayliss, for "Improvements in double-sighted double rifle guns for military and sporting purposes."

C. Wynants, for "An improved chase for printing presses."

W. Smith, for "Improvements in the apparatus for, and method of, increasing the illuminating power of gas."

C. De Groot, for "An improved instrument for corking bottles and other vessels."

T. Lepunteur, for "Improvements in the fastenings for gloves, belts, and other articles."

R. Aytoua, for "Improvements in apparatus to be applied to chimneys or flues for improving the draught therein, and for preventing down draughts or the descent of smoke into apartments."

P. Robertson, for "Improvements in the manufacture of cartridges."

H. Lamplough, for "Improvements in the means for igniting the wicks of candles and lamp wicks."

M. A. F. Mennons, for "Improved apparatus for ascertaining the presence and degree or cessation of vitality in the human body, and in animals of the higher class, applicable to the semeiosis of health, disease, and death."

T. Ashley, for "Improvements in apparatus for attaching horses to carriages."

W. Wharton, for "Improvements in the manufacture or construction of springs for railway or other vehicles."

W. Smith, for "Improvements in the hardening of stone, brick, and other such materials used in building, applicable also to the waterproofing of walls."

W. Ryan, for "Improvements in machinery for fluting rollers."

S. W. Worsane, for "Improvements in machinery for cutting wood."

W. Taylor, for "Improvements in joints or connections for metal and other pipes and tubes."

J. Eaglesfield, for "Improvements in gas burners."

G. Evans, for "Improvements in treating peat to render it useful as fuel, and for illuminating and metallurgical purposes."

E. A. Rouvière, for "An improved pump."

S. A. Carpenter, for "An improvement or improvements in attaching name plates or labels to umbrellas, parasols, walking-sticks, and whips."

Mr. Henry Macmanus, W.S.A., R.H.A., Professor of Painting and Head Master of the School of Art, commences a Course of Five Lectures on the Elements of the Fine Arts, of Form, and Colour, in the Theatre of the Royal Dublin Society, on this day, at eight o'clock p.m., to be continued at the same hour, as follows:—First Lecture, "Drawing and Design; second, on Friday, 2nd, "Light and Shade and Chiaroscuro;" third, on Monday, 5th, "Imitation and Colour;" fourth, on Tuesday, 6th, "Invention and Composition;" fifth and last, Wednesday, 7th, "Costume and Drapery." Free to the public.

Dr. Barker resumed his systematic course of lectures on Natural Philosophy, and its application to the Arts, in the Theatre of the Museum of Irish Industry, on the 23rd ult., commencing with "Heat and the Steam Engine."

TO THE OPERATIVES OF IRELAND.

It is in contemplation to establish an *independent, cheap* press organ—free from political or religious references—for the artizans connected with the constructive and decorative arts—a most important section of the community, whose interests have been hitherto unrepresented by any *special* medium. This palpable want, together with a desire to elevate the condition of the working classes, to advocate their rights, and minister to their instruction and recreation simultaneously, has led to the project in question; but as responsibility is involved, it will be necessary for the measure of probable substantial support to be ascertained before "*The Operative*" (for such is the title proposed) can become an accomplished fact. Prospectuses will shortly be issued, but in the meantime secretaries of trade societies, and others connected or having influence with the working classes—whether belonging to the regular operative bodies or not—should give the fullest possible publicity to the project, and communicate with the proprietor of "*The Operative*," at 17, Lower Gardiner-street. The publication is proposed to be on the 1st of each month, and to cost but one penny per copy.

CLONTARF LOOKING UP!

With pleasure, proportionate to the pain previously experienced in noticing in the DUBLIN BUILDER the neglected state of this favourite—and by nature favoured—suburb, do we now find ourselves in a position to announce, that *at last* the good genius of progress has visited the locality, and purposes being actively engaged in the coming summer, razing the wretched hovels that disfigured the main road, and rearing in their stead domestic structures of a suitable character. "The ruins" at the town side of the police barrack have disappeared, and a couple of plain but neat dwellinghouses occupy their place. Further on, next Rutland-terrace, a plot for a single house has been taken by a gentleman who has more or less a business interest in the prosperity of Clontarf, and immediately adjoining, the proprietor of a well-known extensive furniture and upholstery establishment in this city is about to commence another dwellinghouse, and three intermediate cottages, of somewhat uncommon design and character. These latter—with which the name of Mr. J. J. Lyons, of 17, Lower Gardiner-street, is associated as architect, as also with other works in the neighbourhood—will cause the immediate removal of the thatched and other cabins at the narrow curve of the road to Dollymount, which will now be considerably widened. It is but justice to add, that the requirements as to "class" of houses formerly imposed have been removed, and we doubt not that there will be a very speedy progressive reaction in consequence. If we have humbly aided in bringing about this happy result—and we claim some little merit therefor—the utilitarian character of our mission will be the better appreciated.

THE PRESS OF DERRY AND THE "DUBLIN BUILDER."

Our provincial contemporaries have so far evinced every desire to favour our "*Towns' Survey*," which, as all the cities and important towns in Ireland are to be included therein, is a laborious and comprehensive undertaking; and we are pleased to notice that our account of Derry has met with the approval, not only of the general inhabitants of that good and ancient city, but of the eminent local press, who have courteously reproduced it in the respective journals, accompanied in some instances by complimentary remarks, suggested, perhaps, more by their *kindness* than commanded by our *merit*.

The *Derry Guardian* has the following. We give the statement as it reached us to provoke explanation, but do not hold ourselves responsible for its accuracy:—

"We publish in another column a sketch of "the Maiden city," which appeared in a recent number of the DUBLIN BUILDER. The notice is favourable on the whole, and as the writer looked at Derry chiefly with the eye of an architect, and an accomplished one also, it is to be hoped that the architectural changes and improvements he suggests will be speedily carried into effect. Every one who enters the Railway Terminus must perceive that the building swerves from the perpendicular, and that there are other reasons besides its inadequate accommodation why the public should desire its removal. And there are few of our fellow-citizens who will not rejoice, with the writer, to see the Corporation Hall removed, and a structure more commodious, and in better taste, erected on a more eligible site. Externally the court-house is a handsome building, but the interior greatly needs re-modelling, to adapt it for public business. The new Record or Probate office, in Bishop-street, is, indeed, as the BUILDER states, a 'deformity,' reflecting discredit both upon the designer and the Board of Works. The statement regarding the grave defect in the foundation of the new Roman Catholic Cathedral has come

upon us by surprise. . . . We could not have imagined that so serious a mistake could have occurred in reference to this particular edifice, which has been so long in building, and on which so much of the hard earnings of the poor has been expended. We believe we are not in error in stating that the collection of funds for the erection of this chapel has been in progress for the last thirty years and upwards, and we had hoped that the foundation was securely laid. . . . Without a lofty spire the structure will appear unsightly and incomplete, and the Dublin paper asserts that the erection of a spire above the tower is a 'physical impossibility.'"

THE WATER WORKS.

At a meeting of the corporation on the 22nd ult. the Town Clerk read a report from the water-works committee, dated 4th April, 1862, stating that the council having already agreed to submit the claims of Messrs. Syngé and Tighe to arbitration, the committee had nominated Mr. Francis Codd arbitrator on the part of the corporation in each case, and they asked the council to sanction the nomination of Mr. Codd, and the affixing of the city seal to the deeds of submission, when they were perfected, by the nomination of an arbitrator by Messrs. Syngé and Tighe respectively in their several cases. The report was confirmed unanimously.

SLEEPING WITH OPEN WINDOWS.

SIR—As I find that many have taken up an erroneous idea of the purport of a paper read lately at the Royal Dublin Society, will you kindly allow me space for a very brief explanation. My object was to hold out a caution against the habit of keeping the bedroom windows open during sleep, by which I meant the window opened a fourth or sixth part, and no curtains intervening between it and the sleeper. Against such a custom I must still speak. In this fickle climate I believe such is never free from risk, were it even for no other reason than that the powers of resistance in our frames are materially less during our sleeping than our waking hours. I further wished to draw the broadest distinction between a draft of air and the same air made to circulate by a ventilator or other means. The one, I take it, is right, and the other wrong; whilst they differ as a torrent does from a rivulet. In conclusion, I would observe that the best plan of securing a proper current of air, and one, at the same time, quite free from risk, is still a desideratum, and may in every sense be called an "open question."—I am, sir, yours truly,

HENRY KENNEDY.

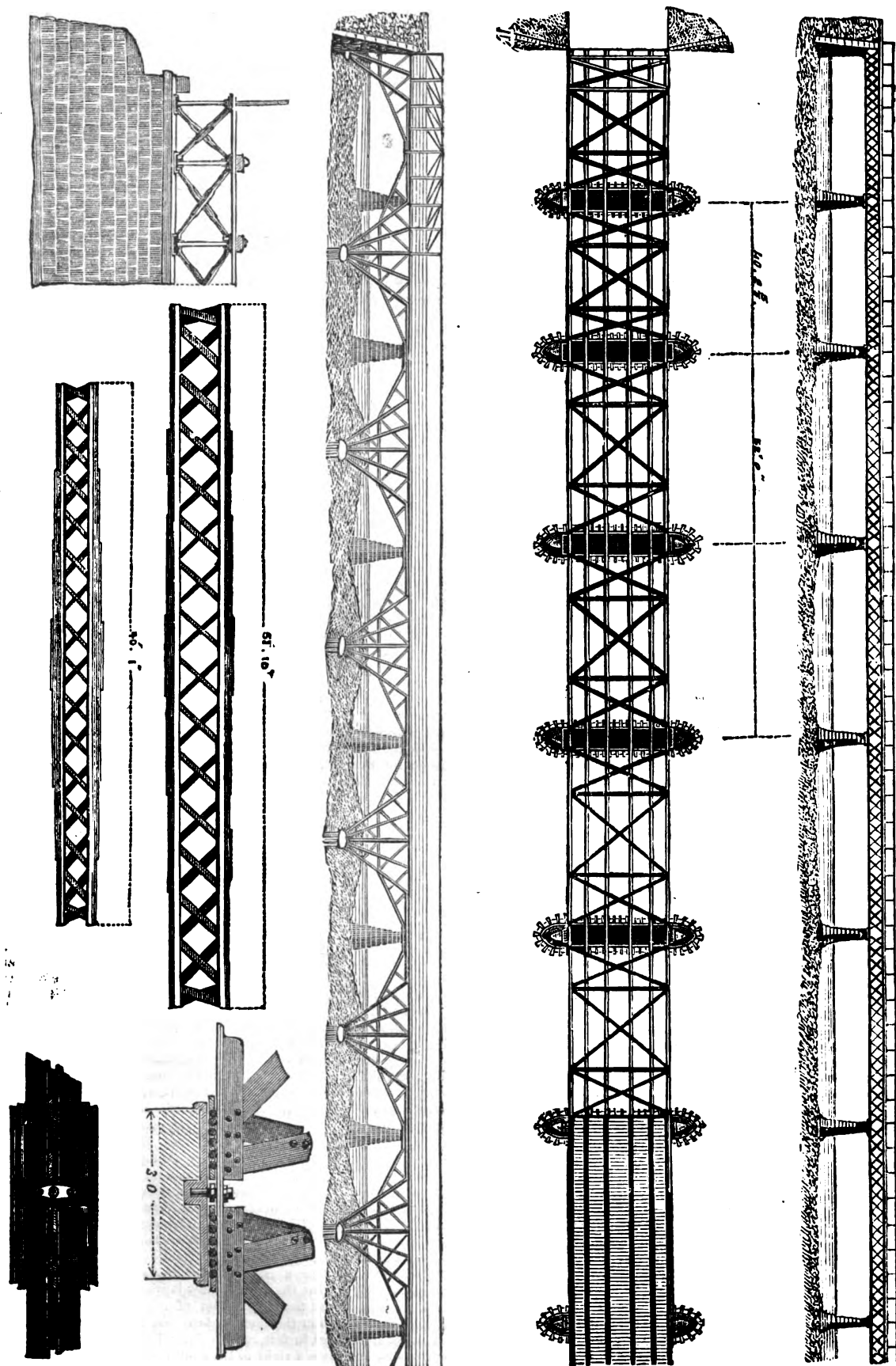
ALLEGED INCENDIARISM.

THE Grand Jury of the county Dublin have been especially occupied during the current sessions in considering presentments for malicious injury by fire to the property of various classes. Amongst the principal were Mr. Thomas Kirby, pyrotechnic artist, of Sackville-street, lessee of the Portobello Gardens, and residing at Tritonville Avenue, Sandymount. It appeared by Mr. Kirby's evidence that he had for many years carried on the business of *selling* fireworks manufactured by others, but subsequently becoming his own manufacturer, much ill feeling towards him was engendered, and he received some anonymous communications containing foul language and figures of a coffin in intimidation. Three attempts had been made to set fire to his manufactory at Sandymount, the last of which was successful; and for the damages sustained thereby he claimed compensation amounting to £855. Portobello Hall was also destroyed by fire—from some cause untraced—previous to its customary opening on Easter Monday, and lastly the business premises in Sackville-street were victimized to same. The Sandymount building having formed the subject for investigation, the Grand Jury allowed the *full amount* claimed. Mr. John Kelly sought compensation for the malicious burning of five cottages at Blackhorse-lane, on the night of the 26th February, 1861. The claimant stated that, about a week before the burning of the cottages, he ejected a tenant, whom he afterwards allowed back, and that he heard the tenant say, the day before the fire, that it would be a sore job for him; he had also to eject another tenant, who was offered £5 to leave, but refused to do so. It appeared that there was no person in the cottages at the time of the fire. Application rejected. Mr. Sadler Stoney claimed £290 compensation for malicious burning of a large rick of straw and out-offices, &c., at Cabinteely, on the night of the 8th of February, 1861. He was from home the summer before the fire, and during his absence threatening letters were sent to his steward and gardener. After he came home he got a threshing machine, and a day or two before that he discharged some men for insubordination. The claimant and some other witnesses having been examined, the jury came to the conclusion that the burning was malicious, and gave the claimant £178 compensation.

* The "DUBLIN" BUILDER we must respectfully remind, in this as well as every instance of notice or quotation.

* It has been conveyed to us as a reason for the serious settlements that have taken place in the tower, that the base course was built overhanging the footings of foundations.

THE MALAHIDE VIADUCT.



CARVING IN WOOD.

THIS branch of art has risen to a higher degree of perfection here than the public are generally aware of. We visited the establishment of Mr. Boyle, of 82, Marlborough-street, the other day, and were very much gratified, indeed, at what we saw there—some small works, deserving of great credit for the correctness of the style they belonged to, and perfection of finish—but one work of remarkable merit is a chimney-piece carved in oak and walnut; it is designed in the much-favoured Italian style of the day, and is an excellent example, but the figures, supporters, and large alto-relievo frontispiece, representing the celebrated boar hunt from "Don Quixote," are works rarely attempted with such success in wood; and we would advise gentlemen who may be sceptical about the talent that can be found in this city when required, to see this work.

MECHANICAL APPLIANCES AT THE AGRICULTURAL SHOW.

ON the 22nd ult. *virtually* commenced the spring agricultural display, held annually on the premises of the Royal Dublin Society, and under the fostering care of that body, but owing to the very high and questionably prudent charge for admission, the public sparingly patronized it until following day, when the attendance was most numerous and fashionable. His Excellency the Lord Lieutenant, according to custom, being present, and two military bands contributing additional *clat* to the proceedings. In some respects there was an *improvement*, in others a falling off, when compared with previous displays, but as the former refers to the more immediate object of *our* notice, we leave the latter for the consideration of authorities on *strictly* agricultural topics, which are outside our province. We were much pleased to notice, that in the implement and mechanical department, "*Irish*" manufactures mustered in goodly force, and that the general quality of the material exhibited showed a decided superiority over those contributed previously by some firms, and fully entitle them henceforward to compete with the *best* efforts of our English and Scotch friends, many of whom we perceived "plying their vocation" to the busy scene. The engines, steam apparatus, field fences, farm gates, &c., of Mr. James Shekleton, of Dundalk, were, amongst the provincial contributions, notable for their excellence, as also were the ploughs and grubbers of Messrs. Miller and Co., of Duffree; the reaping and mowing machines of W. O'Neill, Athy; the harrows of George Oakes, Killucan; the machines of W. and J. Ritchie, Ardee, &c. Of our local manufacturers, Messrs. Edmundson and Co., whose chief contributions, irrespective of various garden implements and articles of iron furniture, castings, chimney caps, &c., consisted of a newly patented portable gas apparatus, with cooking arrangement in connexion; Mr. Daniel, who exhibited another patent gas apparatus, novel gas baths, stoves, and various goods in the ironmongery line; Messrs. Kennan and Sons, whose strained wire fencing, entrance gates, &c., elicited much favourable comments from the agriculturists and engineers who crowded round the stand; Mr. Joseph Saunders, whose admirably-designed and effective cooking range, for roasting at open fire, or baking with closed fire, was in full working order during the exhibition; Messrs. Hodges and Son, Westmoreland-street, improved and portable steaming apparatus, handsome ornamental castings, models and plans for green-houses, garden engines, &c.; Mr. John Maguire, ironmonger to the Society, who displayed a varied assortment of garden furniture and machines of meritorious design and quality; Mr. George Butler, who offered numerous specimens of builders' ironmongery and other goods at a remarkably *cheap* figure; Mr. William Whitestone, somewhat in same line, with addition of washing and other machines, cutlery, &c.; Messrs. Smith and Wellstood had a very numerous collection of their admirable cooking stoves and other apparatus in the gallery; Mr. McCulloch, in terra cotta and pottery wares; Mr. Lavender, do., were the principals in goods of certain classes. Messrs. Francis Morton and Co., of Liverpool, as usual, occupied a prominent position, and displayed their patented improvements in galvanized winding straining pillars for fences, numerous patterns of iron wire, and indestructible wire fences of remarkable efficacy and cheapness, avenue and field gates, galvanized wrought iron and liquid manure pumps, roofing tile, sheep netting, &c. Without disparagement of others, we may note that the manufactures of this eminent firm are extensively adopted and appreciated in Ireland. Of the English and Scotch machinists, agricultural engineers, &c., who contributed, we have only to name the well-known establishment of Messrs. Clayton, Shuttleworth, and Co.; T. W. Ashby and Co.; Picklesy, Sims, and Co.; Hornsby and Sons; Barrett, Exall, and Andrews; Garrett and Son; J. and F. Howard, Kirby, and Barrows; A. and T. Fry; E. R. and F. Turner, &c., &c., to convey a fair idea of the excellence in that department. Messrs. Thomas Perry and Sons, Bilston, and Mr. James Banks, of Liverpool, were also important exhibitors of fences, gates, hurdles, &c., &c.; and Mr. Bradford's "miraculous" washing apparatus—especially a recently patented design—attracted much notice. The necessity of providing shelter both for exhibitors and visitors, was painfully illustrated on Thursday,

during which the rain continued uninterruptedly to descend in torrents, which even a frieze garment could not withstand, and of course the Society found their cash receipts considerably less than had the weather been propitious. We learn, however, that arrangements have been made for the purchase of the Shelbourne yard and for its roofing in, to secure the future shows of the implement department, as at present of the live stock, to be "under cover." The lawn, now used for the former purpose, will be appropriated to another more suitable.

THE LAW OF "THE CUSTOM."

SO fully have we detailed the particulars of the memorable trial of "*Kempston v. Butler*"—in which plaintiff sought damages for the alleged neglect or want of skill, &c., of defendant, a contractor for the erection of an adjoining house in this city, whereby his (plaintiff's) house fell—and so often have we referred to the various proceedings in connexion therewith, that it is quite unnecessary now to repeat them; however, as a fitting termination to such notices, and, we trust, a final settlement of the question, we herewith give in *extenso* the profoundly learned and lucid judgment of Mr. Justice Christian—of the Irish Court of Queen's Bench—than whom no abler judge in the three kingdoms adorns that exalted tribunal.

Mr. Justice Christian, in delivering judgment, said:—

"When the motion for a new trial in this case was disposed of last term, I considered it my duty to state my opinion upon the question of the validity of the custom. That question was then presented under different circumstances from those under which it is offered now; and I desire, therefore, to explain how far, if at all, the views and the reasons which I then expressed, have been altered or modified by the new discussion which the case has now undergone. One of the grounds on which the conditional order for a new trial had been obtained was for supposed misdirection, by the learned Chief Justice, in having told the jury that the custom, if proved to exist in fact, was reasonable and lawful. Upon cause shown against that order, that question was elaborately argued. There were two counts in the plaint in which the custom was averred—the 2nd and 3rd. In the 2nd it was averred to be a custom applicable only to houses which were separated only by a party wall. In the 3rd it averred to be applicable to all houses in the city, party wall or no party wall. The jury found both customs to exist, and they found damages generally on both counts. During the argument upon the new trial motion, it was not suggested that the difference between the two counts was in the least material. Not only counsel in argument, but in the discussion of the case among ourselves, it was dealt with precisely as it would have been if there had been no such count as the 2nd, and the 3rd were the only one in which the custom was averred. The other members of the Court did not think it necessary then to express any opinion upon the question. I thought it was our duty to do so. In the judgment which I then delivered, this passage occurs—'The two counts are substantially the same, differing only in the second, containing an averment that the wall was a party wall, a distinction upon which it was not argued before us, nor do I think that anything material turns. I take the 3rd count as the more general.' I then read that count, and upon the foregoing assumption proceeded to state my reasons for holding the custom, as alleged in that count, to be unreasonable and void. After that motion was disposed of, the *postea* was made up, and upon that occasion counsel for plaintiff went before the Chief Justice, and for the first time, alleged that there was an important difference between the 2nd and 3rd counts—that the former was more favourable for him on the question of unreasonableness than the latter, and he claimed a right to have the damages entered upon the former alone—thus excluding one of the counts on which the damages had been given, and on which expressly one of the members of the Court had formed his opinion against the reasonableness of the custom. This the Chief Justice was pleased to do; and on a motion to the Court to amend the *postea*, the Court declined to interfere. Upon that state of the record, the conditional order to arrest the judgment was granted, and the argument in showing cause against that, was vested wholly and exclusively upon that element which on the former argument was vested as wholly unimportant—namely, the qualification of the custom by the introduction of the ingredient of the party wall. What I have now to consider is whether that ingredient is decisive, and whether, having upon the new trial motion held the custom as laid in the 3rd count to be unreasonable and void—to which opinion I adhere—I am now to hold the custom as laid in the 2nd count to be reasonable and valid.

"Before we can form a right judgment upon the custom, it is essential to define what the common law is which it professes to displace. It was argued that the matter of the party wall makes a great difference even in the common law, and that where it exists, and one of the houses, in fact, affords lateral support to the other, the common law gives a right to the continuance of that support, or to have a substitute for it provided. If that were so, the custom would be unnecessary, and would, indeed, be no custom at all, but

would be void, as amounting simply to the common law, and for that reason alone, the 2nd count would be bad. But I am of opinion that the common law is otherwise. I am not aware of any precise legal definition of a party wall. In strictness, I should apprehend that what it means is, that the two proprietors are tenants in common of it, and of the ground on which it stands, seized *per my et per tou*. But if all one knows of a partition wall is, that it is found standing in the line which divides the lands of two different proprietors, the presumption is, not that they are tenants in common of it, but that each is seized in severalty of half the site of the wall, and consequently of half the wall itself; and this would be the case even if it were proved that the wall were built at the joint expense of the two, unless mutual conveyances interchangeably of the site were shown, or could be presumed; for 'the property in a wall erected at a joint expense ensures the property of the land whereon it stands.' *Watts v. Hawkins*, 5 Taunton 20, is a clear authority for that. Now, if am at liberty to look at the evidence in this case, the latter is the only sense in which the wall between No. 82 and No. 83 was shown to be a party wall—i.e., Kempston was entitled in severalty to one half, and Ferguson to the other. But assume that, upon the finding of the jury, that it is a party wall, we are bound to take it that they were tenants in common. Still I am of opinion that it would make no difference. The owners of it, like tenants in common of any other property, must not do anything which will destroy the common property, and they must contribute to its support and reparation. And if two persons build a wall at their joint expense on their boundary line, with the intention of each adding a building at his own side, I can understand that each gives the natural support of his land, and that he cannot be allowed to dig on his own soil so near as to weaken the foundation of the common wall. But he is not bound to supply or continue *adventitious* supports; and if he does build against the wall, and the new house does come to afford it certain additional support, he may, notwithstanding, take down the house when he pleases, and if he leaves the party wall no worse than it was before he built the house, the neighbour has no right to complain, nor can the length of time during which the house may have stood make any difference, for the existence of the support is a thing uncertain and invisible. It may be the house that supports the party wall, or the party wall that supports the house; and, therefore, no presumption of grant arising from continuance. This will be found explained in *Solomon v. Vintners' Co.* Mr. Heron contended that this case is within the same principle as *Richards v. Rose*, 9 Exchequer. I think it is clearly distinguishable. In *Richards v. Rose* there was much more than the mere common ownership of the partition wall. All the houses there were originally built by the same person. They mutually supported each other, and he, as owner of all, was interested in the benefit of that mutual support. When he aliened one he granted along with it a share in that benefit—a benefit not derived from the partition wall only, but from the support afforded by the whole house; and he retained a similar right for himself for the house he kept. But when the houses are built by different proprietors, each on his own ground, there is no original community of interest in anything but in the bare partition wall. *Brown v. Windsor*, 1 Cr. and J. 20, was relied on, but the injury complained of there was not taking down a house, but digging in the neighbouring land, which loosened the foundation of the party wall. The party who so acted had given express permission to build the adjoining house against the wall, which was originally entirely his own, and it was most properly held that he could not, by taking away the natural support of the soil, derogate from his own grant. Besides the 3rd count in that case averred that the excavation was carelessly and unskillfully done, and the jury expressly found that it was. That case has not the least application to the present. But *Peyton v. Mayor of London*, is a clear authority upon this point, and is not open to the criticism made on it by the plaintiff's counsel. It contains a plain expression of Lord Tenterden's opinion, that the fact of a party wall was not one from which a title to support could be inferred as a matter of law, and it is a clear decision upon that point.

"The common law, therefore, is against the plaintiff.

"But Mr. Heron then argues that at all events the element of the party wall enters with great force into the question of the reasonableness of the custom, because he says, that taken with that limitation, the custom does no more than abrogate what he insists is at best a very thin and unsubstantial distinction of the common law; for he says, that between such a case as *Richards v. Rose*, in which the common law gives the right, and the case of a party wall in which it refuses the right, the difference is nearly imperceptible. Well, if a custom were averred and provided in this case, which professed to give rights analogous to those held to exist in *Richards v. Rose*, it would be necessary to consider that argument; that is to say, if the custom were averred to be that when houses in Dublin have a party wall, the owners respectively of these houses are bound by the obligation of mutual support. But that is not the custom which is laid in the plaint at all; on the contrary, it is precisely by the circumstances in which the custom, as laid, differs from such a

custom as that, that this custom is, in my opinion, stamped with the character of utter caprice and unreasonableness.

"Having so recently stated the reason for which I thought that we ought not to hold the custom as laid in the 3rd count of this plaint to be valid, I shall now do little more than say that I believe every word of what I then said is as applicable as to the custom averred in the 2nd count, as to the custom averred in the 3rd; and that, having had the advantage of hearing the case re-argued after I had publicly stated those reasons, and, having heard no answer to them given, or, I may say, hardly attempted, my confidence in their correctness is certainly not impaired. I refer to the judgment which I delivered then, for the reasons for which I concur in thinking that we ought to have done on that occasions; and I shall now simply recapitulate the leading attributes of this custom, which I then dwelt on in more detail, as being those which, in my opinion, are fatal to its validity.

"They are these—

"First, the custom gives no right to the lateral support, as between the owners of the adjoining houses. If the owner takes down his house with his own hands, or by those of his servants or labourers, the custom has no application. If he employs a builder by trade, the custom, even then, does not fasten the liability upon the employer, but upon the tradesman, who is bound to provide a substitute for that support, to the continuance of which, neither the common law nor the custom gave any right against the owner.

"Second, ancientness of the supported house is but an element in the custom. The liability is as complete after the house has stood for a day, as if it had been there for one hundred years. If one side of the party wall be left unbuilt upon for years after a house has been constructed at the other, and then the proprietor of the former side builds up a house so planned as to depend almost entirely for its support upon its neighbour, not upon the party wall merely, but upon the whole block of the whole building, *instantly*—the moment the new house is finished—the owner of the old one has his property burthened without his assent, probably without his knowledge (for he may have no means of knowing the extent to which the new building is made to rest on the old) with a new and oppressive liability.

"Third, whether the custom shall operate, depends upon the purpose or intent with which the owner was actuated in getting his house taken down. If that intent was to build another in its place, the custom applies. But if the intent was to leave the plot vacant, the common law has scope. This singular feature demonstrates the *absence of a right in the lateral support*; for if there was a right, the interest of the person violating it would be immaterial, and if there be no right, can anything be more capricious than to oblige either owner or tradesman to provide a substitute for that to which no right existed. Is the obligation of the custom coincidental with the continuance of the intent? Does it cease with an abandonment of the intent? Does it revive with a resumption of it? If the house be taken down with the intent of re-building, the custom applies. Does it continue if that intention be finally abandoned, and if so, must the struts and braces be maintained, and renewed for ever? Does the obligation descend to the heirs, and run with the land to the assigns?

"Lastly, the custom must have existed, if at all, from time immemorial. During all those ages the subjects for its operation in this city have been multitudinous. All the reasons of public or private utility which have been urged in favour of its existence here, have had equal operation in all the other great cities of the two kingdoms. Yet certain it is that neither here nor elsewhere, before the present case, was there ever a suggestion or hint of the existence of any such customary displacement of the common law. Being, for these and other reasons already more fully expressed, of opinion that the custom is substantially bad, it is not necessary to express any opinion upon the point of pleading, which is open upon this motion in arrest of judgment—namely, that the second count is bad, for not averring that the custom was from time whereof the memory of man runneth not to the contrary.

"It was urged, in answer to that objection, that admitting it would have been ground of special demurrer, or rather of motion to set aside the plaint, it is now cured by the verdict, and *Clarke v. King*, 8 T. R. 147, was relied on. With respect to that I shall say no more than that having regard to the language of this pleading, I greatly doubt whether that principle can be applied in aid of it, and I will add, I believe that the key not only to the absence of that ordinary and necessary averment, but also to those singular attributes with which this custom is invested, and on which I have commented, is to be found in this, that this case is an attempt to pervert what is nothing more than a bad usage in the building trade in Dublin, which may be good for qualifying contracts between builders and their employers, into a local law, conferring rights and imposing liabilities contrary to the common law, and against the common right, upon persons who are total strangers to such contracts."

DUBLIN BAY NEW LIFE-BOATS.

On Tuesday week, some interesting trials were made in the Regent's Canal Dock, Limehouse, with two fine new life-boats, which the National Life-boat Institution is about to send to Kingstown and Poolbeg, near Dublin. The Kingstown life-boat is 34ft. long, 7ft. wide, and pulls ten oars; the Poolbeg boat is 30 feet long, 7 feet wide, and rows 6 oars. The self-righting qualities of the boats were fully and satisfactorily tested on the occasion. The water they shipped was self-ejected, through patent valves in about 30 seconds. The following are some of the qualities of the boats. 1. Great lateral stability. 2. Speed against a heavy sea. 3. Facility for launching and taking the shore. 4. Immediate self-discharge of any water breaking into them. 5. The important advantage of self-righting, if upset. 6. Strength. 7. Stowage room for a number of passengers. The boats were built by Messrs. Forrest, of Limehouse. The transporting carriage of the Poolbeg boat was built by Mr. Robinson, of Camden Town, London. By an ingenious contrivance, the boat, with her crew on board, is launched off the carriage. With their oars in their hands, the crew are thus enabled to obtain headway before the breakers have time to beat the boat broadside on the beach. The hauling up of the life-boat on her carriage is accomplished with equal facility. The Kingstown boat will not, owing to the position in which she will be placed, require a transporting carriage. Miss Bertie Cator, of London, has assiduously and benevolently collected from ladies the cost (£210) of the Kingstown life-boat, which is called the *Princess Royal*. A third life-boat is being built by the National Institution for Howth. There will shortly, therefore, be found in Dublin three of the most efficient life-boats on the whole coast. A free conveyance has as usual been readily promised to the life-boats by the British and Irish Steam Packet Company, and by the Messrs. Malcolmson. A commodious and substantial house is being built from designs furnished by the London honorary architect of the society, for the reception of the Poolbeg life-boat, her stores, and carriage. We regret to add, that throughout the length and breadth of Ireland not £600 is collected in annual subscriptions in aid of the maintenance of a work that will yield to none other in importance and philanthropy. The money thus collected in Ireland, in aid of the maintenance of our Irish life-boats, is again spent amongst our hardy seamen and fishermen.

ECCLESIASTICAL BUILDING NEWS.

Croghan (Elphin).—The small but handsome Protestant church, just erected here at an expense of about £1,200, has been consecrated. From the *Evening Mail* we learn that the late Mr. Guy Lloyd granted the site, and laid the foundation-stone, and whose remains are deposited in a vault under the church. It is constructed in the "old English" style of ecclesiastical architecture, and presents a most imposing appearance, which will be further augmented when the spire is added, which Mr. Lloyd purposes doing at his own expense. The chancel window, of beautifully stained glass, is a memorial to the late Mr. Lloyd. The church consists of a nave and chancel; the former measuring from wall to wall 52 feet 9 inches in length, and 25 feet 9 inches in breadth; and has free sittings containing accommodation for about two hundred. The graveyard and surrounding space is tastefully laid out and planted.

Drumgoon (Cavan).—The church is to be enlarged according to plans by the architect to the Ecclesiastical Commissioners.

Drumcondra (Dublin).—We understand that the Corporation of Dublin, whose property this church is, purpose expending about £250 in repairing and otherwise improving it.

Thomastown.—A new parish church (Roman Catholic) has been nearly completed here at a cost of £4,000 so far, from designs by Mr. J. J. McCarthy, R.H.A., architect.

Augustinian Church (Dublin).—The foundation-stone of this building, which, if the design by Mr. Ashlin (Pugin and Ashlin) be carried out in its integrity, will be a great acquisition to the architecture of the city, was laid and blessed by the Roman Catholic Archbishop, Dr. Cullen, on Easter Monday. Illustration and description will be found in DUBLIN BUILDER for May 15, 1861. It seems, according to the *Freeman*, that the new church is being erected on the very spot where for 350 years the ancient Priory of St. John the Baptist, founded in 1188, stood. An extensive hospital for the poor was attached to it.

Rathgar Roman Catholic Church (Dublin).—We were not a little amused a short time since in reading the account of the opening of this most ill-shaped and unsightly heap of building materials, at the glowing praises of "the beauty of its design" contained in some of the resolutions proposed. How can any men of intelligence, no matter how far removed from architecture their occupations may be, wrong their judgment so? What shall the architects of the next generation think of our proficiency in art, when we build for the worship of the Most High a structure which, architecturally considered, would hardly be tolerated as "a foundry" or a "railway store," though suggesting an idea of either.

Annacurra (near Aughrim, co. Wicklow).—A Catholic church, in the Gothic style, is being completed here from designs by Mr. Richard Pierce, of Wexford. The plan comprises nave, aisles, side chapels, two sacristies, and south porch, with bell-tower and spirelet in south-west angle of nave, by which ascent is obtained to the organ loft, the lower storey forming an internal porch to western doorway. The dimensions of the church internally are 95 feet by 42 feet. For increased accommodation, two confessionals have been built in the north aisle wall, and project on the outside in the form of wide buttresses; buttresses have also been placed at the eastern gable, and diagonally at the angles of western gable and porch. The pillars supporting the nave walls are octagonal in shape. The east windows of nave and side chapels are triplet lancets, and those of aisles and clerestory, and western end of nave, couplet lancets; the glazing is in diamond quarries fixed in lead bands, a swinging casement, to act as a ventilator, being fixed in each window. The dressings, pillars, spirelet, &c., are executed in granite. The expenditure, exclusive of internal fittings, is about £1,500.

CONTEMPLATED NEW WORKS.

Proposals are being received for the erection of a school-house and teacher's residence near Kilkea Castle, on the Duke of Leinster's estate.

The Alliance and Consumers Gas Company are about erecting a large coal-store in connection with the works on Sir John's-quay.

Extensive alterations are to be made to the first Presbyterian Church, Derry, according to plans of Mr. Douglass, architect, Glasgow.

A new asylum is to be erected at Leeson-park by the governors of the Old Men's Institution, Mr. William Murray, architect.

The Board of Works contemplate the laying of metal piping along the Carlisle Pier, Kingstown, to supply the royal mail steamers with water from the reservoirs.

Three dwelling houses are to be built at Avoca-avenue, Blackrock, Mr. J. C. Burne, Architect.

A villa residence is about being erected at Ballymahan, near Belfast, for Mr. Jonathan Cordukes, according to designs, and under directions of Mr. Thomas Jackson, architect. The exterior will be faced with Scrabo stone in ashlar courses, Tyrone stone being employed for the several dressings, plinths, and strings, &c.; Mr. John Murphy, late of Dublin, is the contractor. At same townland, and at a short distance from the above, a large dwelling house, in the Italian style, with a campanile continued up over a porch is in progress, under same professional superintendence, for Mr. Thomas McClure, J.P.; Mr. John Lowry being the contractor.

BUILDINGS IN PROGRESS.

The New Unitarian Church in Stephen's-green is rapidly progressing, and some of its handsome detailed features may even now be viewed; Messrs. Lanyon, Lynn, and Lanyon, architects; Messrs. Hammond, contractors.

The fronts, for sometime past in course of erection in Nassau-st., for Messrs. Brown and Nolan and Rosenthal respectively, are approaching completion; Mr. McCurdy is architect for the former, and Mr. Ferguson for the latter.

The work of clearing and excavating for, and laying the foundation of the new College of Physicians, on the site of the old Kildare-street Club-house, has been commenced by the contractors, Messrs. Beardwood and Sons. Illustrations of the design for this building by Mr. Murray, architect, are in hands, and will shortly appear in the DUBLIN BUILDER.

Messrs. Cockburn and Sons are proceeding rapidly with the erection of the new offices in Sackville-street for the Colonial Assurance Company.

A considerable portion of the pedestal of the Crampton Memorial fountain at the junction of Great Brunswick, College, and D'Olier streets, has been built. It is of finely chiseled granite, and triangular in plan; the bust and a superstructure of pyramidal form surmounting. Mr. Joseph Kirk, R.H.A., is the designer and sculptor; Mr. Millard the builder.

The works in the interior of Derry Cathedral which have been so long in hands are at last rapidly approaching completion. The entrance to the church is by a spacious vestibule, having traceried panels, and doors filled with plate glass. The floors of the porch, vestibule, aisle, and chancel are laid with Minton's encaustic tiles. The stalls for the dean and prebendaries are placed at the west end, and the pulpit. It is octagonal in form, surmounted by a ribbed canopy, terminating in a crocketed spire of beautiful openwork, and is, as a work of art, highly effective. The old clumsy double pews are replaced by handsome open benches, the backs of which are filled in with perpendicular tracery. The bench ends are finished with carved poppy-heads, which exhibit a great variety of excellent designs. The pulpit, reading-desk, lectern, and communion rails are richly decorated specimens of mediæval art. The western gallery is approached by a beautiful balustraded staircase, and affords sittings

for about 120 persons, exclusive of the accommodation required by the organist and choir. The whole of the fittings and interior wood-work are of Kiga oak, thoroughly seasoned, and of the best description. The north aisle is ornamented with two splendid windows. The first from the east is to the memory of the renowned Rev. George Walker, the Governor of Londonderry during the memorable siege, and represents the three great Israelitish warriors, Joshua, Caleb, and Gideon.—*Derry Guardian*.

RAILWAY INTELLIGENCE.

The directors of the Enniskillen and Bundoran extension railway have entered into a contract with Mr. North, an English contractor, and it is expected that the railway will be completed within two years, the period stipulated for making the line. The first sod was turned on the 13th March last, and the works commenced on the following day. The directors, feeling the great importance and value of extending the line to Sligo, availed themselves of the great liberality of Viscount Palmerston, and other landed proprietors, who have, in the handsomest manner, placed land for the construction of fifteen miles of this extension, free of charge, at their disposal, together with a large money subscription. This extension will give the undertaking an important position, making it a main trunk line to and from the west of Ireland, and all the northern ports—thus giving increased facility to the Scotch and English traffic, which your directors are sanguine will be very considerable from passengers, tourists, merchandise, &c.

We (*Armagh Gazette*) are gratified to be able to inform our readers that the works on the Newry and Armagh line are rapidly progressing. The Loughgilly tunnel is open from end to end, and the works are being advanced satisfactorily. A contract has been taken for the completion of the work from Markethill to Armagh, and on this end of the line active operations will soon be recommenced. The directors are anxious to have the whole complete in September, 1863.

A contract has been entered into between the directors of the West Cork Railway and the Messrs. Moore for the construction of the proposed line.

A small blue book, of eighteen pages, enumerating the number and nature of railway accidents on all the lines of the United Kingdom, in the year 1861, has just been issued. The summing-up shows that, in England and Wales, 44 passengers and 22 railway servants were killed from causes beyond their own control, and 24 more passengers and 66 railway servants lost their life from what is stated "their own misconduct." The number of injured passengers amounted to no less than 769, of which only 7 for "misconduct;" while railway servants 56 were injured, 13 of them for "want of caution." Besides some 60 passengers and miscellaneous individuals had their heads cut off by passing trains. In North Britain railway accidents were comparatively scarce, the well-known Scotch caution evidently prevailing throughout. Ireland was still more fortunate in the year 1861, having only to boast of 4 killed passengers and 16 "misconduct" railway servants, besides 7 fatal trespassers. The grand total for the United Kingdom is no less than 284 persons killed and 883 wounded by railway accidents. In this awful list of sacrifices paid for the benefit of cheap travel, the London, Brighton, and South Coast Railway leads the way by 23 killed and 209 wounded; closely followed by the little Hampstead Junction line, with 15 killed and 817 wounded. Very few lines in England show an entire absence of casualties; and, in fact, the only railway of note on which not a single passenger or servant received injuries was the Eastern Counties.

In the United States there are 31,800 miles of railway in; in the United Kingdom there are 10,750 miles; in France, 6,147; in the German States, 3,239; in Austria, 3,165; Prussia, 3,126; Canada, 1,826; Spain, 1,450; East Indies, 1,408; Italy, 1,350; Russia, 1,289; Belgium, 955; Switzerland, 600; Cuba, 500; Holland, 308; Sweden, 288; Denmark, 262; Egypt, 204; Chili, 195; Victoria, 183; New Brunswick, 175; New South Wales, 125; Brazil, 111; Nova Scotia, 99; Portugal, 80; Turkey, 80; Norway, 63; Rome, 50; Peru, 50; New Grenada, 50; Cape of Good Hope, 28; Mexico, 20; and Paraguay, 8. The cost of United States railways is about £8,000 a mile; that of French and English railways upwards of £30,000 a mile. In the United Kingdom the railway companies own 200,000 locomotives, carriages, and waggons, and convey nearly 200,000,000, and nearly 100,000,000 tons of goods, in the course of the year.

Two of the railway companies—viz., the L. and N. Western and G. Western, have consented to modify the arrangements previously made for the conveyance of visitors to London during the first week in this month. The L. and N. W. R. C. have made arrangements for extending return tickets by the ordinary trains between all stations north of Rugby from the 30th of April to the 8th inst. inclusive, and also for excursion trains with tickets available from the 30th April to the 5th inst. On the G. W. R. the directors make the return tickets to London on 30th April available for the return journey up to the 3rd inst.

It is contemplated by the Cork and Youghal Railway company to commence the extension into Youghal town immediately, and also to lay down a second line of mails from Cork to the junction of the Youghal with the Queenstown line.

STATUES.

O'Connell.—An immense stone weighing 11½ tons, and measuring 4 by 3½ feet, was removed from the quarry of Mr. Peter Rafferty, at Brackernagh, on Thursday evening last, to be sent by rail to Dublin. It is intended (says the *Western Star*) for a statue of the late Mr. Daniel O'Connell, to be erected by the inhabitants of the County of Clare, in the town of Ennis. There were many attempts made during the last fortnight to remove the stone by the aid of horses, which were ineffectual, the axle of the truck having broken on one occasion. The Earl of Clancarty having been informed of the circumstances on Wednesday, at once, with the spirit of liberality for which he is proverbial, gave an order to Mr. Rafferty to obtain a number of bullocks, ropes, &c., at Garbally. In the evening two bullocks were yoked to the truck, but the road leading from the quarry being too narrow, they were unable to work together. About six o'clock on Thursday evening a large number of workmen assembled at the quarry and having procured ropes, succeeded in drawing the stone to the railway station; and in its passage through the streets, it was accompanied by a vast crowd who at times gave vent to their gratification by lusty cheers. On the arrival of the stone at the railway station, Mr. Cahill (a pupil of Hogan's) who had been her's for a week, got up on it, and after a brief, but spirited address, called for three cheers for the Earl of Clancarty, and three for the great O'Connell, to which appeal the assemblage enthusiastically responded. The blue limestone of this neighbourhood is now in great repute with both architects and sculptors, large blocks of it being frequently sent by train to Dublin.

Edmund Burke.—There is talk of erecting a statue to the great, noble, and illustrious statesman and Irishman, Edmund Burke. We (*Sligo Champion*) hope that this is something more than mere talk—that there is a real *bona fide* interest in carrying out such a design, which was once before attempted to be put in execution but never realised. Why do not men like Lord Charlemont, Lord Talbot de Malahide, Sir Bernard Burke, and others of their position, take the leading parts in this movement? There is shortly to be presented to the Dublin public a statue of Goldsmith—of the pure-minded, suffering, honest, learned Goldsmith—in enduring bronze. Let the same be done for Burke. Leading and influential men should guide the effort and ennoble the work, which others would be glad to aid, not for the purpose of glittering and illusory display, but out of the profoundest reverence for the name, memory, wisdom and eloquence of a true born Celt, who by matchless honour and unequalled genius, won his way to a glorious and undying fame.

Eglinton.—At a meeting of the Eglinton memorial committee, held at Morrison's hotel, on this day week, it was moved by John George, Esq., M.P.; seconded by Hans Hamilton Woods, Esq.—"That the following Irish artists be invited to send in to the committee models, drawings, and plans, for the execution of the statue and pedestal: P. MacDowell, R.A.; J. H. Foley, R.A., and J. E. Carew.

[Why should not this competition be unlimited and let all Irish artists share therein.—ED. D. B.]

GENERAL NEWS.

The Annual National Cattle Show of the Royal Agricultural Society of Ireland will be held in Limerick, on the 6th, 7th, and 8th of August next.

Captain Coppin, of Derry, claims to have suggested in February, 1853, the construction of iron clad ships on a principle superior to the Merrimac and Monitor.

The majority of the Dublin parishes, at recent vestries, declined to support the Royal Irish Society for the Protection of Life from Fire, and it is consequently proposed to dissolve that society.

Professor Cameron, the talented editor of our excellent contemporary, the *Agricultural Review*, has been presented with the gold medal of the Pathological Society, for having contributed the best essay on "the diseases of the larynx and trachea." Dr. Banks, as president, made some very complimentary reference to "the very great industry, research, and considerable talent" of the worthy professor. The silver medal was won by Mr. John Berry, Mulock.

Arrangements are in progress for working Mr. Stevens' bread machinery patent by a joint-stock company under the limited liabilities acts, with a most influential directory.

The spring exhibition of the Royal Horticultural Society of Ireland, held in the Rotundo on the 24th ult., was most numerously attended, notwithstanding great inclemency of weather. His Excellency and suite were present.

The Town Commissioners of Kingstown purpose forming a new burial ground, and require from two to three acres for that purpose. The cathedral of Derry, after having undergone much alterations and improvements as alluded to in our notice of the city, is to be reopened this day.

On Friday last a deputation of gentlemen in London, most of them interested in the cotton manufacture, waited on the Lord Mayor, with a view of representing the increasing distress in Lancashire, and to invite him to be the medium through whom the community might contribute towards its alleviation. The Lord Mayor gave his assent.

The sum received for season tickets for the International Exhibition exceeds by nearly £5,000 the amount received up to the same time in 1851.

Mr. Safford has discovered a new planet, which discovery raises the number of asteroids yet known to 72. It is noticed that the newly found members of our system has the least mean distance yet recognised among the minor planets.—*Athenaeum*.

A valuable service of silver plate is about to be presented to Mr. E. W. Mannsall, late secretary of the Limerick and Ennis Railway Company—and now secretary of the Dublin, Wicklow, and Wexford—by the directors and officers and others of the former company, in token of their esteem.

A new French infernal machine is described as capable of destroying six iron-plated ships at a distance of more than 3,000 yards. The British Admiralty, it is said, are already acquainted with the secret of the invention.

The French Exhibition of this year, which is the ninth of its existence, is one of the most interesting that Mr. Gambart has ever provided. There are nearly 200 pictures, and the average excellence, especially in cabinet pictures by the French painters, is unusually high.—*Critic*.

The contributions from Rome to the Exhibition will form a feature of the highest interest, and in the domain of art the Eternal City will still maintain her ancient supremacy.

The Lord Mayor of Dublin, at the usual weekly meeting of the Albert Memorial Committee on Saturday last, drew attention to the gratifying fact that the less wealthy classes were sending in their subscriptions to a large amount; he would mention, amongst others, £5 11s. 6d. from the employees of the Gresham Hotel, and £3 12s. 7d. from 77 persons in Glenalla, Co. Donegal. He hoped the example would be generally followed.

The drawing for "the Shilling Art Union" prizes will take place on the 18th of June.

The Bath theatre, and one of the handsomest structures of its kind in the three kingdoms, has been totally destroyed by fire. The building was insured in the West of England and Norwich Union offices for about £6,000 only. The wardrobe and library are utterly consumed. Mr. Chute (formerly of the Dublin theatre under Mr. Calcraft's management) the lessee, who is not insured, loses about £500, and the members of the company and the orchestra are also sufferers. The origin of the fire is a mystery.

Mrs. Jenny Lind-Goldschmidt announces three performances of oratorios at Exeter Hall, to take place on Wednesday, 14th, Wednesday, 28th, and Wednesday, the 4th of June, the proceeds of which are to be devoted exclusively to charitable purposes.

The British and Irish Magnetic Telegraph Company have entered into an arrangement with the Cork and Bandon Railway Company to erect a series of wires along their lines, with a view to an extension to Cape Clear.

The new court and cloisters in the South Kensington Museum, chiefly filled with works of Italian Art, were opened to the public on the 30th ult.

Rossini has just been named by the Queen of Spain commander of the Order of Charles III.

A company is formed to purchase the leases of, and to work a thoroughly proved slate and slab quarry, already developed, situated on the south side of Bantry Bay, in the Parish of Kilerohane, in the County of Cork. The quarry is situated directly on the shore of the Bay, which advantage will permit the slates and slabs to be shipped at a few yards only from the quarry, by means of a pier to be constructed from the debris out of the quarry.

LITERATURE.

The *Literary Gazette* is defunct after an existence of forty-five years.

The copyrights and stereotype plates of sixteen volumes of the late Dr. Lardner's scientific compilations, comprising the "Museum of Science and Art," &c., were sold by auction by Mr. Hodgson, for £2,000.

Three new and greatly amended editions of the anonymous epic poem, "The Last Judgment," are in the press, and will shortly be published by Messrs. Longman.

Messrs. Chapman and Hall are about to publish for Mr. Henry Taylor a new dramatic composition, entitled "St. Clement's Eve," embodying the history and manners of the time of Charles the Sixth of France.

Mr. Monckton Milnes is about to stand sponsor for another small volume of verses, "The Luggie, and other Poems," by David Gray, a new poet. Mr. Milnes adds a preface and some introductory remarks on David Gray's poems.

The *New Quarterly Review* for April contains four leading essays; two of which are severally devoted to reviews of extremely worthless books, viz., "The Wits and Beaux of Society," and Mr. Thornbury's "Life of Turner." These books are, in journalistic parlance, "let down lightly;" the editor reserving all his thunders for Mr. Madden's "Turkish Empire." We shall only quote the first two lines of the latter review: "The foolish old fanatic, who has written this absurd book, introduces himself to his readers in the following pompous strain." The next sentence but one is in the same strain of amenity. "He (Mr. Madden) has yet to learn that locomotion alone is no guarantee of real knowledge; that much observation only addles a shallow understanding; and that many a man who has never stirred out of his native village, may, by careful and judicious study, put to shame the ostentatious dogmatism of men whose minds have been stretched by travel beyond what they are able to bear." It is a pity that the writer of this article, who seems well acquainted with the history and prospects of Turkey, should not have employed less forcible language. The "Summary of Literature of the Quarter," more especially that of German literature, is well done, and will serve as a fair guide to readers who may be puzzled as to their bearings in the labyrinth of books which have appeared from January to April.—*Critic*.

LAW NOTES.

"A Little Angle."—Very Important Judgment.

Gray, Petr.; Boswell, Respdt.—In this case the Master of the Rolls delivered judgment, which was in substance as follows:—

Petr. was owner of property in Monkstown, valuable as building ground, and laid out as Belgrave-square. Negotiation commenced with him and respdt. for lease of ground on west side; latter took mem. of agreement, as he understood it, held two copies thereof, called on petr. in March '60, who, having read it, both parts were executed by petr. and respdt. The letting was for 999 years, at rent of £66 12s. 6d. per acre. At bottom of agreement was inmem. made and initialed by respdt., and which led to the litigation—viz., "the little angle opposite to Troke's to be added to the road." Petr. asserts that mem. was made before agreement was signed; respdt. afterwards. Petr. maintained the intention and effect of the mem. to be to exclude "the little angle" from the lease and throw it into Troke's-road, the boundary of the letting; respdt. that it was not intended to alter, and did not alter the boundary, as stated in body of agreement, which included "the angle," and that respdt. was to add it to Troke's-road. It is surprising (said the Master) that this enormously-expensive suit should have been instituted when it was admitted that "the little angle" was to be added to the road by either the petr. or respdt. Respdt. (a retired solicitor) made draft of lease which laid before solr. for petr., was approved, subject to map required, and certain amendments. Respdt. adopted the extraordinary course of drawing the map himself on last page of amended drafts, and with so little care that the northern boundary in it formed a straight line instead of a curve at Troke's-road. Solr. for petr. approved of amended draft and map, leaving boundary unaltered in body of lease, which described the northern boundary as Troke's road; no notice in draft lease of mem. at foot of agreement that "the little angle" was to be added to the road. Such a transaction, he (the Master) supposed, never took place before, as a lessee, not a surveyor, and wholly ignorant of the subject, drawing a map on a draft lease, and the solicitor for lessor approving of the draft and not taking the trouble of comparing the draft with the agreement or of introducing a provision as to the "little angle," which would have at once led to the discussion of the question, before the lease was executed, as to whether that angle was or was not to be included in the demise. Respdt. sent two draft leases of different portions of premises to a scrivener, who copied the map so artfully that at the commencement of the argument he (the Master) supposed the map to have been drawn by a surveyor. Execution of lease was witnessed by petr. solr. The result of this extraordinary mode of carrying on business was, that after the execution of the lease petr., contending that a small portion of the premises adjoining Troke's-road, did not pass, took possession of it and planted potatoes in it, and the part so taken not only included the "little angle," but a further portion up to (in evidence) the lockspitted line, petr's case being that that line was the northern boundary of what was agreed to be demised. Respdt. brought action of trespass against petr., a consent for judgment, and admitted that he had no title at law to the part in dispute. The object of the suit was to reform the lease by exempting from the demise "the angular portion lying between the lockspitted line and Troke's-road." Having inspected the premises, he (the Master) had come to a clear conclusion that "the little angle" mentioned in the mem. was not formed by the lockspitted line and the boundary between Mr. Mone's premises and those in dispute, but was formed by a wall which ran a short distance from Troke's-road, separating Mone's premises from those in question, and another short very wall nearly at right angles with the first. He had directed a map to be made by respdt. surveyor, pointing out the lockspitted line and the little angle formed by those walls, and that map should be lodged in the Registrar's Office and referred to in the decree, in order, if possible, to close the litigation, unless the party against whom he decided should appeal. Several witnesses had been examined *ex vivo*. With the exception of the evidence of the surveyors, such evidence was not legally admissible; however, the counsel on each side had consented to the admission of it without any regard to the suggestion of the Court. If the lease was at variance with the written agreement, it should be reformed; but if the boundaries in lease were in conformity with the agreement, he did not understand upon what legal principle parole evidence could be given to construe the written agreement. He ought to decide the case on the construction of the written agreement, and without reference to the parole evidence, except that of the surveyor. If so, according to his construction of the agreement, the suit was unsuitable. The petition was dismissed with costs, except so far as may be necessary to enable the court to enforce the undertaking. The Master had some doubt about the costs; but as he was of opinion that the petitioner's case had failed as to the lockspitted line being the northern boundary, it was better that the general rules now established in courts of equity, that the costs should follow the result, should be followed in this case.

Carroll v. Hynes.—A garnishee order had been obtained by the plff. to attach a debt of £1,900, the amount of a contract for the construction of a station and other works, alleged to be due by the Newry, Warrenpoint, and Rostrevor Railway Company to the deft. The case stood over from a former day, to enable the company to ascertain what sum they would admit to be due by them to the deft. They now admitted £986. Besides that work had been done to the amount of £1,725; but they claimed £1,300 penalties against the deft. for non-execution of the contract within a limited time. The company were prepared to remit £320 of the penalties, provided the matter were finally settled now.

Counsel for the plff. stated that they had no power to bind Mr. Hynes, the deft., who was not represented. They would take an order for £986, and Mr. Hynes would sue the company for what would remain due to him. They would, of course, be glad to take an order for the additional £320, as a payment on account.

Counsel for the company said his clients would not remit the penalties unless the transaction were now closed.

The Barons intimated that they would make an order for the payment of £986, each party to bear his own costs.

Counsel contended that the railway company ought to be allowed to deduct their costs out of the money ordered to be paid. The Court directed the company within ten days to bring in £986.

Hurley v. Howley.—This action was brought against the Rev. Mr. Howley, P.P., to recover an amount alleged to be due on a builder's account, and was tried at the last after sittings, when the jury found for the plaintiff.

Sergeant Armstrong, on 28rd ult., in Queen's Bench, moved for a new trial on several grounds. Rule nisi granted.

BANKRUPTCY.

In re David Russell.—The bankrupt, a railway contractor, residing on Usher's-quay, came up for final examination, and passed. Mr. Goughgan was for the assignees, and Mr. Clay for the bankrupt.

Miscellaneous.

ROYAL IRISH ACADEMY.—A general meeting was held on 28th ult., Very Rev. Dr. Graves presiding. Mr. F. J. Foot read a paper on the botanical peculiarities of the Burren district, County Clare, illustrated by a botanical map, and alluded to the peculiarities of the plants, some of which were remarkable for a fresh and beautiful foliage. Handsome drawings of them were exhibited. The Rev. Dr. Lloyd read a highly interesting paper on earth currents in connection with magnetic disturbances. He gave details of the result of observations in various parts of the world, including those at Dublin, by himself, of the directions of earth currents.

THE ELECTRIC TELEGRAPH.—At the close of the last century there was, at the University of Bologna, a celebrated professor of anatomy, Signor Galvani. It chanced that upon one day his Signora was unwell, and the good man recommended some frog broth; but, not content with this recommendation, he set himself to work to make the restorative himself—for, happily for the cause of science, the professor was not ashamed to leave his lecture-room to attend to the more humble duties of the *cuisine*. Having obtained a sufficient number of the interesting animals from which to make the broth, he proceeded to cut them up, when, to his great surprise, he noticed that, after the frogs had been killed, every time he touched the severed limbs with the knife they became contracted or convulsed. Many a cook had, no doubt, observed this motion before, but no one, like Galvani, set himself to inquire into the causes of this apparent phenomenon. The result of his observations was to induce him to believe that the action was electrical, and that this muscular contraction on contact with metal was caused by an unseen influence which has since been known, after his name, as the Galvanic current. The supply of frogs for the production of this kind of electricity being somewhat limited, other means were sought by which to obtain the fluid or current, and Volta found out that, if he substituted a piece of zinc for a knife, and for the frogs' muscles some cloth moistened in acid, he could produce the same result. The decomposition of metals in acids, which was then discovered, constitutes the basis of the voltaic and galvanic battery. Electricity produced by this mode is made to convey to us from all parts of the earth those short and pithy sentences which, under the head of telegraphic news, is looked forward to with so much interest by our readers.

POPULATION OF VICTORIA.—Twenty-five years ago, says a Melbourne paper, the census of what was then called the district of Port Philip, but which has since obtained the more euphonious style and title of the colony of Victoria, was taken for the first time. In that year, 1836, the return made of the population was—males, 186; females, 88; total, 274—therefore, within a short quarter of century the increase of our population has been considerably over two thousand fold.

THE PERSISTENT ACTIVITY OF LIGHT.—A celebrated French photographer, M. de Saint Victor, has recently made some valuable discoveries regarding the above. He exposed to the influence of bright sunlight, for three hours, a piece of porcelain plate, then laid it upon a piece of paper prepared with chloride of silver. Some parts of the paper were intentionally not laid under the porcelain, to discover the difference, if any, between the covered and uncovered parts. After twenty-four hours the porcelain was removed, and the paper examined, when it was found that the silver salts were reduced in that part of the paper which had been placed under the porcelain, but no effect was produced in the paper which had not been covered. This led him to conclude that solar light communicated activity to some bodies, which they retained after exposure to the sun's rays. He then tried experiments with a steel plate, one part of which was polished and another part made rough on the surface with strong nitric acid, then washed with alcohol and dried. This plate was exposed to the sun's rays for three hours, and then one-half of the polished part of it and one-half of the rough part were placed under an opaque screen, with the other portions under a piece of transparent glass. The plate was then laid upon albumenised paper prepared with chloride of silver. After twenty-four hours' contact—the same time as with the porcelain—an impression of the unpolished portion of the steel plate, acted upon by the light, was obtained; but none from the polished part, nor from the unpolished portion which had been placed under the opaque screen. A strip of glass ground or roughened on the surface, and cleaned with distilled water, gave the same results as the steel plate; but under a violet-coloured glass, the light had less action than under a white glass.

DEATH OF TURNER.—The death of the great painter was as dismal as his life. He had disappeared, nobody knew where, from Queen Anne-street. Chance glimpses of him were seen from time to time, principally in suburban public-houses, from which the tremulous old figure vanished as soon as it was recognised. His friends, his "Joney," and brother academicians, would have sought him out, had it perhaps been anybody's business, or had there been any clue to his whereabouts. At last his old housekeeper, employing the wits which possibly some woeful vestige of old love or jealousy quickened, discovered the retreat at Chelsea in which the old man had found another dismal bower of Armida. When he was discovered he was dying. He had sent for a doctor from Margate, in whom he had confidence, who told him his end was near. "Go down stairs, doctor," said the trembling patient, with a wistful appeal to the arbiter of life and death most tragic in its serio-comedy and faltering attempt at a jest, "take a glass of sherry, and then look at me again;" but this propitiation did not alter the dread verdict; and thus, always sordid in his poor surroundings, apparently preferring the meanest aspect of things domestic, in a house no better nor more refined than his Covent Garden birthplace, the great painter died nameless. They say that in these last dreary days the lonely old man would start from his bed and stumble up with tottering steps to the cottage roof, from which he could see that dark river waltering between its familiar banks, which had twined a glistening thread of natural tenderness through his barren life. Despairing feeble eyes, before which the night of gloom was gathering, turned wistful on that stream where still the golden sunshine glorious shone upon the darkened tide. Refused life a wild creature in that obscurity, fled from his vain fame, his useless hoards, the familiar circumstances of his long unlovely life, what thought possessed the dumb soul, mutually defiant of all human influences, in that dying gaze upon the light which had no pity for his failing vision? Too dark for imagination to enter upon—pitiful enough to silence even the necessary verdict of justice, is that last scene in the dark drama. The tragedy was over when the black gleaming Thames, all from muddy and miserable, yet glorified with light from heaven, faded the closing eyelids of the old painter, upon whose murky life a light almost as glorious and as profoundly alien to the turbid stream it shone on had blazed and glistened; but the tragedy is only ineffably pitiful, sad with real human failure and misery—not heroic nor touched with the elevation of sorrow. No compensation beautifies the dismal loss then consummated and brought to a conclusion. The heart aches that turns away from that dark spectacle. No throb of human conquest over death and forgetfulness, no consciousness of genius triumphant over the obstacles that have fretted its path, swells the breast of the spectator as he turns from that melancholy death-scene. Let the darkest curtain fall over the lost life. Here died a man to whom, by strange accident, had fallen such a glorious gift of genius as might have indemnified a human creature for all the agonies of existence. He could not annihilate the splendid donation of Heaven, but he did all that human perversity could do to lessen its glory. He permitted it to blaze forth in pictures marred by his wilfulness. He debarred it, with stubborn pertinacity, from fashioning out of the harsh elements of his speechless soul either a man or a life."

TO KINGSTOWN BY STEAMBOAT.—At a recent meeting of the Town Commissioners of Kingstown, the following resolution, relative to the proposed steamboats between that suburb and the metropolis, was adopted:—"That we highly approve of the spirited enterprise proposed, to establish a company to ply steamers hourly between Kingstown and Dublin, and we will give it all the support in our power."

ART UNION OF GREAT BRITAIN.—We understand that Mr. J. G. Law, secretary to the above Art Union, is coming over from Manchester at the opening of the Hibernian Academy, to select with Mr. Lesage of Dublin, paintings by Irish artists, as they did last year, to be given as prizes at the drawing of the Art Union of Great Britain, which is to take place on the 28th of June next.

THE OPERA.

EXTREME disappointment—though few, if any, had the candour openly to avow it—was very generally felt by a discriminating Dublin audience at the production of the operatic version of "The Colleen Bawn," under the modified title of "The Lily of Killarney," at our Theatre Royal, on Easter Monday evening. The "Pyne and Harrison" troupe, of metropolitan renown, might, by some, be considered almost sufficient to "command success"—no matter almost what the representation—but the names of its members being associated with a new opera, by an eminent composer, and, moreover, the accompaniment of a subject established by previous dramatic representations of unprecedented popularity, served to increase intensely the expectations of a satisfactory result. Such, however, was not to be, and the previously-heralded laudations of London audiences—which all know comprises as heterogeneous a medley, incapable of pronouncing an *authoritative* and *definite* opinion on the merits of any representation—went for naught in influencing that bar of criticism before which even the luminaries of the London theatrical hemisphere feel concern in pre-

senting themselves. The features of the drama are tolerably faithfully adhered to in the opera, but the veritable Irish element, in its integrity, is palpably wanting throughout—the overture, the choruses, and general concerted music, savouring of the German strain; a fact, perhaps, not much to be wondered at, but certainly very much to be regretted. Were it not for the vocalism of Miss Louisa Pyne—unquestionably the first female English opera singer of the day, and who gave the few redeeming points to best advantage—Mr. Benedict's composition would hardly have been tolerated here to repetition. Mr. Harrison, in his personation of Miles-na-Coppaleen, no doubt, finds favour with those of an English audience, who rejoice in the exaggerated stage Irishman, but not with the "old folks at home," who know something better; indeed—though allowances are to be made for an actor in "the hey-day" attempting a part so unsuitable to his capabilities, and inconsistent with his previous line of character—his assumption of the racy brogue, with *two-thirds* cockney twang intermingled, was truly ludicrous. We must allow, however, that he acted with vivacity, and sung a shade better than on the occasion of his last visit. Mr. St. Albyn, as Hardress Cregan, was very mediocre. The Danny Mann of Mr. Henry Corri, in point of acting, suffered by comparison with his predecessor in the drama, nevertheless showed merit, and in singing he lacks melody and modulation, though possessing power. Mr. Eugene Corri (*Duack nom de plume*) personates "Corrigan" too grotesquely, and skips too much a la maître de danse. The hunting chorus was miserably rendered. Mr. Levey, with his usual tact and ability, brought his efficient orchestra through a critical ordeal, and received well-merited applause.

NOTICE.

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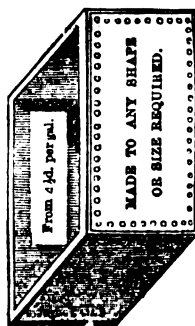
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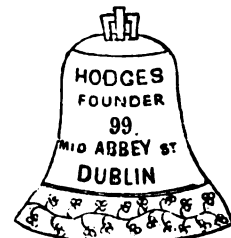
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VOL. IV.—No. 58.

THE DICTIONARY OF ARCHITECTURE.*

THE work to which—and the circumstances connected therewith—we desire now to direct special attention, has, though still in a comparatively embryo stage, and not half way reached its intended ultimate length, already secured by its genuine worth, by the comprehensiveness of its purpose, by the zeal and ability with which it has been conducted, perhaps unprecedented appreciation; not only by those professionals for whose benefit it was more immediately designed, but by such "outside the pale" who either quaff an occasional draught, or *con amore*, "drink deeply" from the fountain of architecture. Eulogiums in such a case become almost superfluous, but as time rolls on, circumstances change, and must more or less affect an undertaking dependent on transitory support; it therefore becomes necessary for its steady maintenance for the filling up of those vacancies which constantly occur during a protracted period, to try and break fresh ground by laying bare to the public gaze its many claims for consideration.

Such is the object of this notice, and to render it more complete, and of, we hope, greater utility, we shall briefly review the history of the Society and its offspring. In the year 1848—as we learn—a few gentlemen, chiefly London architectural practitioners, resolved themselves into an association for the promotion of their art, by publishing in superior style original papers on, and illustrations of, such subjects as should from time to time be procured from contributors; the expenses to be borne by annual subscribers, at the almost nominal figure of *one guinea*. This—as must be inferred—would, if attended with success, have secured a perpetual establishment, and as perpetual a standard work of reference on all architectural questions however novel; but shortly changing its tactics to purposes more defined and more practical perhaps, the association subsequently decided on limiting its labours to the production of a complete Alphabetical Encyclopædia, embracing in its scope the most authoritative information on all that relates to architecture and the kindred arts and sciences. Had such an undertaking been instituted under the auspices of a joint-stock company, or of an individual capitalist as a matter of mere pecuniary speculation, it were but reasonable to assume that, at any expense, the best available contributors would have been secured; but there existed not the necessity for embarrassing engagements, for "*the labour that we love*" was *ab initio* the guiding motto of this worthy band, and to their immortal credit—individually and collectively—be it spoken, the services of every contributor to the work in question have been, and are still, *gratuitous*. Under various phases of fortune and depressional influences respectively, "the Dictionary" has so far pursued its way through the first five letters of the alphabet, and arrived at the termination of letter F. Considering the time that has elapsed since the commencement of the undertaking, this progress is admittedly *slow*; but there is, nevertheless, a counteracting pleasing reflection in the guarantee of more careful production being thereby afforded than if undue haste had been a distinguishing characteristic of the society's proceedings. Amongst the contributors in the *letter-press*, are to be found some of the most eminent professional authorities and architectural practitioners, whose names are familiar throughout the kingdom as "household words"—may we not say *universally* so?—besides many non-professionals, archaeologists, and ecclesiologists, learned in the theory of the art, and distinguished for their valuable researches and communications; and the *illustration* department—which, at option of subscribers, is either *separate* or *distinct*—has received constant feeding from the inexhaustible portfolios of somewhat the same sources. By this simple reference we judge, that the high and practically valuable character of the work, in a double capacity, is obviously established.

A difficulty of a very serious character beset the path of the Society in an early stage of its operations, and which, had it not been surmounted by almost superhuman exertions, should have proved fatal to its original purpose—viz., to extend far and wide the circulation of the Dictionary, and to maintain its completeness in perpetuity. For a certain number of early subscribers

a proportionate quantity of sets, according as the work progressed, were secured by the annual payments—which we assume to have been *sufficient* at least to meet the current expense of production—but with succeeding years fresh acquisitions joined the ranks, and each (of course) desiring to begin with the beginning, the stock of the back numbers—illustrations especially—was becoming "beautifully less," and the important question of "how are *future* subscribers to be supplied with *complete* vols. arose?" The existing funds were inadequate to the expense of a reprint—should same at any period by exhaustion of stock be required—but by a vigorous effort and application of the powerful lever of influence, by an appeal to the generous consideration of those who had hitherto remained outsiders, the coffers were replenished in time to attain the desired end, and for all probable purposes a sufficiency has been obtained. Perhaps one of the best evidences of the estimation in which this work is *re-servedly* held, is to be found in the fact, that the few stray copies that, up to that juncture, had found their way to "book stalls," were at a *premium*; precisely the contrary of works generally produced in parts, which, under similar circumstances, would be obtainable at *half-price*. With reference to the management, we have to state that the affairs are under the guidance of a metropolitan committee located at 9, Conduit-street, assisted by Mr. Arthur Cates and Mr. Wyatt Papworth—gentlemen to whose earnestness and ability the undertaking is deeply indebted—as hon. secretaries for "correspondence" and for "the Dictionary" respectively. In addition, however, a complete system of local secretaryships has been organized throughout the chief towns in the kingdom as well as Ireland—where, in Dublin, the Society is represented by Mr. Charles Papworth, archit., 7, Talbot-street, in Belfast by Mr. R. Young, C.E., and in Cork by Sir John Benson, archit. and C.E. Whatever particulars have not been supplied in the foregoing remarks are easily obtainable from the officials named, and it shall afford us much gratification to learn that an influx of new members may be consequent on this notice. Each of our "trade societies" connected with architectural and building pursuits, should also lay aside their *guinea* annually and have a copy of this work. Communications on a list of terms proposed to be included under letters "G" and "H" are invited; amongst such we find the following—viz., "Galway," "Gandon-James," "Granite," and "Grey Stock," which may probably elicit some suggestions from our readers in Ireland.

TRADE SOCIETIES.

THE REGULAR OPERATIVE HOUSE-PAINTERS.

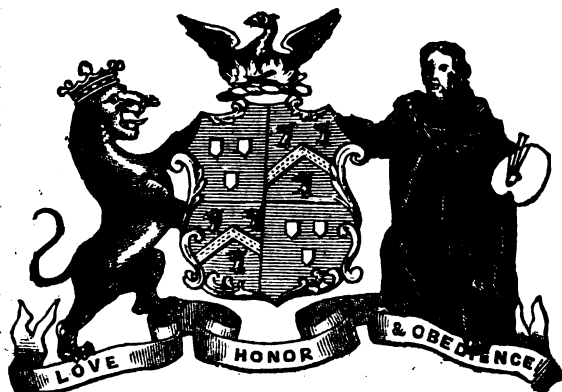
ORIGINALLY incorporated nearly two centuries ago—viz., in 1670—this society has since steadily maintained its ground, growing with its growth, strengthening with its strength, carefully guarding the welfare of its members and their brethren of the craft, and pursuing a generally useful and philanthropic career. At first it was associated by Royal charter with the important body of "the cutlers," and invoked the special patronage of St. Luke, who, we are told, as well as being a professor of physic, was also skilled in painting; but subsequently the guilds dissolved partnership, and "the painters" determined to maintain themselves independently. Since July, 1860, pursuant to resolution, the body has been technically known as "the St. Luke's Benevolent Association of House-painters of the city of Dublin," but for some time prior to that period, it comprised two distinct bodies, known as the St. Luke's "Pension" and St. Luke's "Mortality Fund." Convinced that "union is strength," an amalgamation took place by mutual consent, and the change has so far proved successful, for we find the body, which now numbers about 400 members, in a high state of prosperity, comfortably housed, and distinguished for intelligence and—what is better—excellent moral character. Indeed this is a remark that also applies to the other societies in this city, of which we recently gave a brief history, and mean to extend likewise to those not yet visited; our voluntary record of same will, we trust, therefore, rather lead to emulation than jealousy, and form a fitting subject for mutual congratulation. One of the many evidences afforded of the excellent objects of this society is a project, now under consideration, of establishing an orphanage *irrespective of religious opinions*, and under the charge of clergymen, for the children of deceased members; a project that at once enlists the sympathies and commands the admiration of all who feel an interest in suffering humanity.

As zealous advocates of "sanitary reform"—that first and most essential step in the social scale, and on which both the physical and moral welfare of a community so much depend—the regular operative house-painters have shown themselves not inferior to their fellows, by both cheerfully lending their spacious apartments on a recent occasion for the special use of the committee; by diligently attending the proceedings at the halls of the other bodies; and lastly, by sending a representative in the deputation that on the 7th inst. waited on His Excellency, urging the necessity of a suitable measure. May we here venture to interpose, that as example is all powerful in its influences, either in good or evil, so would that, in a sanitary regard, by individuals who advocate it, have a salutary effect on the community

* Architectural Publication Society, 9, Conduit-street, London, W.

generally; not waiting till some one comes to improve us, but in right earnest set about improving *ourselves* by strict attention to cleanliness of dwellings and of person. The very commendable motto which the painters have adopted as their guide—viz., “*love, honour, and obedience*,” and which may be seen on the engraved escutcheon displayed at foot hereof, has, we doubt not, been faithfully borne in mind, and its admonition fulfilled; for the “love” they bear their brothers is fully evidenced by “the honour” they do both the living and the dead, assisting the aged and infirm by a weekly allowance of 7s., sufficient to keep them from the degradation of the workhouse, paying the last tribute expenses for deceased members, contributing a sum of £20 to the widow, and providing for the children—if boys, by apprenticeship to a trade, and if girls, by securing them a plain and religious education to qualify them for an honourable mode of life. These are some of the results of the good-fellowship principles on which this society is founded, and long may it prosperously continue to give effect to them. A very liberal and remarkable feature in the rules is, that the pension allowance does not disqualify recipients from earning money, nor—becoming unemployed—from claiming it again. An annual payment of 18s. constitutes membership, subject to certain restrictions, amongst which are the service of seven years apprenticeship, with capability to produce testimonials of *good conduct*, sons of members being also eligible for admission *if they have conducted themselves with propriety during their servitude*, the moral character of the applicant forming a subject for previous scrutiny. This is as it should be, for skill in handicraft and “good conduct” do not always keep pace with each other, and the precaution is but a protection in common justice to the society’s interests generally. Rule vi. provides for the establishment and maintenance, by subscription of 4d. per month per member, of a reading-room and a library. We have reason to believe, however, that the resources in both these regards are very inferior to what they might be, and, doubtless, will be, after a little, when proposed arrangements for new premises shall be completed. The society has occupied its present premises in St. King-street for last twelve years, and two spacious rooms for meetings, together with other apartments, are obtained. A peculiar disease, not unfrequently fatal, and popularly known as “painters’ cholera,” is incidental to the pursuit of this occupation, owing, as may be inferred, chiefly to the inhalation of the turpentine, oils, and leads used in the admixture of colours, but custom overcomes its effects, and few, if any, of the older members suffer therefrom. A president or chairman is elected by ballot annually, Mr. James Ward, an old and highly-respected member of twenty years’ standing, at present filling that office for the *third* year consecutively—a compliment we feel assured as highly appreciated as it is well merited. The other officers comprise secretary (Mr. Thomas Hoey), sub-treasurer (who is bound in security by bonds), and wardens; the latter to enforce obedience to the president’s directions at meetings, but whose services are very seldom called into requisition, owing to the general orderly demeanour observed.

We shall hope to be afforded at some future time the pleasing opportunity of chronicling the increasing success of “The Regular Operative House-painters’ Society.”



COAT OF ARMS OF THE REGULAR OPERATIVE HOUSE-PAINTERS' SOCIETY, SOUTH KING-STREET—INCORPORATED 1870.

INSTITUTION OF CIVIL ENGINEERS IN IRELAND.

At a general meeting of this body held in the Museum Buildings, Trinity College, on the 14th inst., Mr. M. B. Mullins, C.E., in the chair. A most interesting paper, “On the manufacture of compressed peat fuel in Ireland,” was read by Mr. Hodgson. It commenced by stating the different per-centages of water contained by peat and turf in their various stages of manufacture, according to the usual method employed by the Irish peasantry. The great difficulty to be overcome is the abstraction of this water by compression and

evaporation, and various machines and contrivances were made to that end. The author explained the principle and working of several of these, and pointed out some of their defects. He then detailed the working of a machine erected by himself near Monasterevan, and exhibited specimens of the fuel made by it in circular pieces about 4 inches in diameter and 1 inch thick. Sixty of these were made in a minute, and they came out of the tube or cylinder like a great sausage. From four such tubes which he had at work about 30 tons of fuel could be made in twelve hours.

In the discussion that followed the chairman said that, on reflection, it appeared as if a natural law opposed the attempts to re-compose de-composed matter profitably. Mr. Hodgson gave the manufacture of paraffine as an exception to this law.

Mr. Anderson said that he made experiments with the peat fuel in a furnace under unfavourable circumstances, but that it gave out great flame and heat, and did not injure the brass.

Mr. B. B. Stoney then read his paper on “The action of salt water on lime mortar.” An injury occurred to the quay-wall between Ringsend and the Pigeon-house fort, in consequence of the washing away of the mortar. He gave analyses made by Dr. Apjohn on some of this in different states. The presence of silica and alumina were essential to make good hydraulic mortar.

The chairman, in commenting on the statements of the author, said that an Irishman, Dr. Higgins, was the first who gave a great deal of attention to the subject of mortars, and that his work would be found useful even at the present day. He found that burnt clay mixed with lime made a good hydraulic mortar.

The following gentlemen were balloted for:—Mr. George Dodd, engineer of the Agra railway, as a foreign life member; John Jameson, C.E., and T. P. Crosthwaite, C.E., as associates.

The chairman congratulated the meeting on the success of the session and the many useful and interesting papers read, and hoped that the honour of being contributors to the society would stimulate the members to future efforts.

[The papers above referred to shall, by special permission, be published in the next numbers of the DUBLIN BUILDER.—ED.]

GEOLOGICAL SOCIETY.

A GENERAL meeting of the members was also held last evening, in the Museum Building, Trinity College. The Rev. Professor Haughton occupied the chair.

Mr. J. Beete Jukes, M.A., read an elaborate and able paper on the mode of formation of some of the river valleys in the south of Ireland. The paper gave rise to some discussion.

ROYAL DUBLIN SOCIETY.

THE seventh evening scientific meeting will be held on Monday evening, May 19. The chair will be taken at eight o'clock. Royal Dublin Society (Board-room)—Communications:—1. Mr. Mahony—“Thoughts on the Social Position of Tradesmen.” 2. Mr. William Glenny Crory—“On the development of the Industrial Resources of Ireland.” For exhibition—A new patent ventilator.

ROYAL IRISH ACADEMY.

At a general meeting held on the 12th inst., the president in the chair, Captain Taylor read a paper, illustrated with several large diagrams and pictures, on “Cromlechs found in the Decan,” and which went to prove that these cromlechs were Druidical remains of a kind very similar to those found in England.

The Rev. Dr. Reeves read a paper communicated by Lieutenant Haughton, R.A., “On the difference between rainfall and evaporation at St. Helena in 1860.”

Dr. Wilde presented a fine specimen of an antique forgery of the so-called Ring Money, consisting of an enclosed ring of copper covered with a plate of gold; in the name of Mr. Barnwell, a series of stone and bronze Breton antiquities, recently found in the neighbourhood of Carnac and Cape Finistère, and made some observations on their similarity with Irish articles of a similar class now preserved in the Museum of the Academy. He likewise presented, on the part of Dr. Drew, of Drogheda, a broad-bladed iron Danish sword, found in the river Boyne.

The Rev. Dr. Reeves presented, on the part of the Rev. William Hancock, of Colehill House, County Longford, an autograph letter of Oliver Goldsmith, dated 1758, and addressed to Robert Bryanton, Esq., of Ballymulvey, whose daughter, Jane Bryanton, was married to the Rev. Dr. Hancock, the father of the donor. Dr. Reeves read the letter, which was first published in Prior’s Life of Goldsmith. Another autograph letter by Goldsmith, also the property of the Rev. Mr. Hancock, was exhibited.

Dr. Waller said that in 1837 the room occupied by Oliver Goldsmith in college was still standing, and the pane of glass on which he scratched his name might be seen. Mr. Forster adopting this information had described this room as still standing when he wrote, although it was destroyed in 1840.

ON THE CONSTRUCTION OF THE MALAHIDE VIADUCT.*

(Continued from page 107.)

THE shorter beams are similarly calculated to carry 28 tons each, with a concentrated load on lattices of 4 tons additional. The flanges of the beams are composed of pairs of unequal sided angle-irons with their deep sides, between which the lattice-bars are secured vertical, the necessary sectional area being made up by piles of plates, decreasing in number from the centre towards the piers. The webs consist of double systems of diagonal bracing, presenting fifteen points of intersection with the flanges.

Table No. I indicates the total strain in tons, the sectional area in inches, and the unit strain in tons on each bar of the bracing, calculated for the present paper by those most useful formulae for which the profession is indebted to Mr. B. B. Stoney, and which may be found in the "Quarterly Journal of Science" for October, 1859.

TABLE I.

Strain in diagonal bracing due to 264 tons on each apex, and 5 tons moving over beam.

No. of Bar.	Maximum compressive strain.			Available sectional area.	Unit strain.	Maximum tensile strain.			Available sectional area.	Unit strain.
	Due to uniform load.	Due to 5 tons passing.	Total.			Due to uniform load.	Due to 5 tons passing.	Total.		
1	13.034	6.3	19.334	5.23	3.72	0.000	0.0	0.000	sq. in.	tons.
2	0.266	0.5	0.766	3.93	0.19	9.676	5.5	15.076	3.1	4.8
3	9.576	5.5	15.076	4.25	3.55	0.228	0.8	0.728	2.2	0.23
4	1.061	1.5	2.561	3.19	0.8	6.650	4.5	11.180	2.4	4.65
5	6.650	4.5	11.180	3.75	2.95	1.064	1.5	2.564	2.7	0.95
6	2.394	2.3	4.894	1.69	2.53	4.256	3.5	7.756	1.1	7.0
7	4.256	3.5	7.756	2.25	3.44	2.394	2.5	4.894	1.5	3.26
8	0.000	0.0	0.000	4.31	0.00	11.172	6.0	17.172	3.7	4.09
9	11.172	6.0	17.172	4.75	3.61	0.000	0.0	0.000	2.6	0.00
10	0.532	1.0	1.532	3.56	0.43	7.990	5.0	12.980	2.3	4.64
11	7.980	5.0	12.980	4.0	3.24	0.532	1.0	1.532	3.8	0.51
12	1.506	2.0	3.506	2.81	1.28	5.820	4.0	9.320	2.1	4.44
13	5.820	4.0	9.820	3.75	2.86	1.596	2.0	3.596	2.2	1.63
14	3.192	3.0	6.192	1.31	4.66	3.192	3.0	6.192	0.75	8.25
15	0.65	5.08	5.73	4.31	1.33	0.00	0.0	0.00	0.0	0.0
16	9.64	5.08	14.72	5.25	2.80	0.000	0.00	0.00	0.00	0.00

TABLE II.

Strain in flanges due to a uniform load of 37 tons.

No. of space.	Top flange.			Bottom flange.		
	Maximum strain.	Available area.	Unit strain.	Maximum strain.	Available area.	Unit strain.
0-1	tons.	sq. in.	tons.	tons.	sq. in.	tons.
1-2	7.92	9.50	0.83	9.24	5.44	1.54
2-3	23.76	9.50	2.5	25.08	5.64	4.53
3-4	36.96	15.37	2.45	38.28	10.62	3.64
4-5	47.52	15.37	3.22	48.84	10.62	4.6
5-6	55.44	21.24	2.61	56.68	15.38	3.61
6-7	60.72	21.24	2.86	61.94	15.38	4.03
	63.36	21.24	2.98	64.36	15.78	4.09

If W represent the load on each apex of a system of bracing inclined at an angle ϕ with the vertical, and N be the number of loaded apices between any given diagonal and the abutment, and l be the length of beam, then the strain in that diagonal will be

$$= (1 \times \pi) \frac{W \sec. \phi}{2 l} \text{ when the first apex is distant one whole}$$

bay from the pier, and $\frac{\pi^2 w \sec. \phi}{2 l}$ where the first apex is only

one-half bay distant from the pier. That portion of the formula

$$\frac{w \sec. \phi}{2 l}$$

is a constant for every individual beam, so that the process of finding the pressure on each diagonal is simply multiplication by $(1 \times \pi)$ or π^2 as the case may be.

Table No. II. gives the total strains, sectional areas, and unit strains in every portion of the flanges. In estimating the sectional areas available for duty, a deduction of 1-8th in. of surface all over the beam has been made to allow for corrosion, which, as has already been stated, is extremely rapid. In the top flange and compression lattices no deduction has been made for rivet holes. In the bottom flange, in which all the holes are punched, the cross section of the holes augmented by $\frac{1}{4}$ has been deducted, while from the tension lattice bars in which the holes were drilled, their actual cross section has alone been taken. As regards the necessity of considering a punched hole as somewhat larger than its measured diameter, it is necessary to explain that from several experiments recently made, there can be no doubt that the material immediately surrounding a punched hole is sensibly injured by the violent straining it undergoes. The author hopes that before the close of this session, he will be able to complete the experiments referred to and lay the results before the Institution, for which reason he will not now enter more deeply into this interesting subject.

* Paper read at Institution of Civil Engineers of Ireland, by William Anderson, member. For illustrations see number for 1st inst.

The cross-bracing connecting the six girders of each span gives rigid lateral support to the top flanges at four points, leaving, in the larger beams, a length of 22 ft. in the centre to act as a column with fixed ends. The breadth of the flange is 12 in. or 1-22nd of the length, at which proportion Eaton Hodgkinson's experiments have shown that wrought iron will bear very nearly a crushing strain without lateral deviation. The lattice bars in compression are all $1\frac{1}{4}$ in. thick in the layer, and 1 in. thick in the smaller beams, the breadth only being varied according to the strain. The sectional area of these is determined by the law that the power of flat bars to resist a compressive strain varies directly as the cube of the thickness, as the breadth, and inversely as the square of the length. This law, which has been thoroughly investigated and experimentally demonstrated by Eaton Hodgkinson, will be found very clearly set forth in that mine of practical information—"E. Clark on the Britannia Bridge," vol. i., p. 318. From an average of eight experiments there recorded on bars of various proportions, the author has calculated a constant for wrought iron which gives very nearly the strength of any bar whose length exceeds thirty times its least dimension. Let l = length in feet, t = thickness in inches, b = breadth in inches,

$$\text{then the breaking load in tons, } w = 215 \frac{t^3 \times b}{l^2} \text{ It is hardly}$$

necessary to remark that, in consequence of the difficulty of getting bars perfectly straight, perfectly uniform in texture, and in making the direction of crushing strain to coincide accurately with the centre of the bar, very great accuracy is not to be expected in such calculations.

In considering the length of the compression bars, a question arises as to whether the tension lattices which intersect them in the centre can be considered as securely fixing these points as regards lateral deviation. Inasmuch as the weight of a flat pillar depends on the square of its length, this is a most important consideration; for, if the tension lattice was capable of keeping the centre of the compression bar immovable, the latter might be regarded as two short pillars instead of one long one, and might, consequently, be made of lighter section. That the tension bars do actually give great lateral support to weak compression bars may readily be seen in a great many existing bridges, even of large spans, where very long, thin bars are loaded to a far greater extent than they could possibly sustain if not so supported. It is quite evident, however, that the tension diagonal can give no lateral support until the bars have already deviated from their original places, so that distortion must have commenced before this support is available.

As regards any increased strain on the tension bars, from the extra duty they may thus be required to perform, it is easy to show that it cannot be considerable. Firstly, suppose the compression bar A, B, to bend in the plane of the beam to the extent F, E—C, D, being the tension bar crossing it—it is quite evident that if B, F, the resistance of the bent bar, F, E, will represent the force necessary to keep it in equilibrium; therefore the additional strain on C, D, will be the load on B, A, diminished in the proportion the amount of deflection bears to half the length of the bar, which in practice is always a very small fraction. Secondly, the effect of lateral deviation is to throw a tensile strain on C, D, equal to the compression strain on A, B, because the angles at which the forces act being the same equilibrium can only obtain when they are also equal. But as the loads, the tension and compression bars in any one part of a beam are very nearly equal, the strain due to lateral deflection can never greatly exceed what the tension bar is constructed to carry, without lateral deviation. The rivets connecting the angle irons to the flange plates are $\frac{3}{4}$ in. diameter, those connecting the lattice bars to the flanges vary from $\frac{3}{4}$ in to $1\frac{1}{2}$ in., according to the section of the bars; the latter are all in double shear, and so arranged that the sectional area of rivets holding each bar is at least equal to half the area of the bar. Some extracts from the specification will best explain the remaining details of construction.

"The position of the fish plates at the joining of the flange plates and angle irons is not shown on the drawings, to enable the contractor to use the longest plates and bars possible; but it will be strictly required that the same available sectional area be preserved in every part of a beam, as is shown on the drawings. No rivets may be used to fish the flange plates except the two rows of $\frac{3}{4}$ in. rivets, shown on plans. No rivets may be used to fish the angle irons except those of the flange plates or $\frac{3}{4}$ in. rivets in the same lines as the two rows fastening the diagonal bars.

"All holes in plates or bars over $\frac{3}{4}$ in. thick must be drilled, but if $\frac{3}{4}$ in. thick or under they may be punched.

"All malleable iron used in this contract must bear a strain by tension of, at least, twenty tons per square inch of its section in any part of the plate or bar.

"All cast iron shall bear a strain by tension of at least six tons to the square inch of its section.

"The contractor shall provide for testing, in such way as shall

be satisfactory to the company's engineer, 10 per cent. of the bars and plates to be used, the part to be tested being cut from the end or edges of the iron as shall be pointed out; and if it shall happen that a sample tested of any lot gives way with a less strain than specified, it shall be in the power of the company's engineer, or any one acting for him, to reject the whole lot.

"All the beams shall be tested, if required, in the presence of the company's engineer, or some one acting for him, and to their satisfaction: the larger inside girders to forty tons, the smaller to thirty tons distributed."

It will be noticed that in the specification the quality of the iron is definitely fixed by a standard that can readily be measured. The ridiculous clause, hitherto in general use, defining iron by particular brands, is happily going very much out of fashion, though it is remarkable that it is not easy to get ironmasters to guarantee their iron to bear any given unit strain. The lattice bars were all rivetted to the flanges by Cook's patent steam rivetting machine, a diagram of which the patentee has kindly sent to illustrate this paper. It differs from Garforth's machine in not being direct-acting; the steam cylinder is placed vertically the connecting-rod working through a trunk is connected to a lever keyed on a rocking shaft, forming also an eccentric which actuates the rivetting die. Nothing can exceed the quality of work done by this machine; the author finds that it is equal to four gangs of rivetters, each gang being composed of three men and a boy. In doing plain straight work 1,500 rivets a day, of ten hours, can be put in. The rivets are heated in a small air furnace, as at the Britannia Bridge.

It was found impossible to close the 1½ in. rivets in a satisfactory manner by hand; a head was indeed formed, but the body of the rivet remained quite loose in the hole. In rivetting by pressure the iron is forced into all the inequalities of the holes, in proof of which it is found that nearly one-half more iron is required to make an ordinary ½ in. rivet head by pressure than by hand. The specimens of rivetting on the table, one row of which was done by this machine and one by hand, at once show this difference.

The girders were all tested by laying on the specified weight of pig iron before they left the contractor's yard. To facilitate this operation two pieces of 12 in. by 4 in. plank, of a length equal to the span, were laid on the ground, the pig iron was piled on them, and the beam to be tested being laid on blocks a few inches higher than the load the weight was lifted on by means of ½ in. screws passing in pairs, through crossheads resting on the beams, into the planks below; these screws were so spaced that a crosshead rested over every intersection of the lattices with the flanges. As soon as a beam was tested, the rods were unscrewed, the crossheads removed, and the girder lifted out without disturbing the load or screws, which were thus ready for the next beam. The deflections were taken by means of a fine line, fastened at one end of the beam, and kept stretched by a weight after passing over a delicately made pulley at the other. The deflections were very regular, and call for no special notice; the mean amount for the large beams was 0.55 in., that of the small beams 0.30 in.

The time occupied in testing did not exceed a quarter of an hour. In testing isolated beams of this description, the author has observed that, in consequence of the strain in the tension and compression lattices not passing exactly through the centre of the beam, but in planes at a short distance from, though parallel to each other, a considerable tendency to twist is apparent, rendering it necessary to support the ends of the beam on opposite corners on the tension side.

This circumstance renders it very important, in isolated beams, to divide the compression bars, and make the tension diagonals pass between them. In some small beams, recently made for the Royal Canal Bridge on the Dublin and Drogheda Railway, which were tested to 10 tons to the square inch, this twisting was so great that the load could not be laid on without fixing temporary hard wooden pillars between the flanges over the abutments.

The specification originally provided that the ironwork was to receive two coats of oil paint. This, however, was given up in favour of a hot bath of coal tar, which was administered in the following manner:—Under the large travelling crane at the Dublin terminus a cast iron tank 53 ft. long, 2 ft. 6 in. wide, and 5 ft. deep was erected and filled with coal tar. Under one end was placed a small furnace, with the flue running under and all round the tank to a chimney at the other end. As fast as the beams were delivered the travelling crane deposited them one at a time in the tank, to simmer as long as the demand for them would admit—some one hour, some two days. When drawn out they they were allowed to drain for a short time previous to loading on the wagons. It is hardly necessary to state that this treatment ensured a most perfect coating of tar.

The beams having been lowered into their places by the travelling cranes on the bridge, were connected by horizontal and vertical crossbracing. The former is composed of eight bars of 5 in. by ½ in. flat iron in each span running at right angles to the beams,

and rivetted under and over the bottoms and top flanges. In the same plane with them, and secured in the same way, are the diagonal ties of 3 in. by ½ in. iron.

The vertical bracing is formed of 5 in. by 2 in. by ½ in. -iron diagonals, four sets to each span, rivetted to the inner sides of the flanges, directly under the 5 in. by ½ in. flat bars, their ends being twisted and cranked so as to admit their crossing each other, and being rivetted back to back at their intersections.

(To be continued.)

PROFESSOR SMIRKE'S LECTURES ON ARCHITECTURE AT THE ROYAL ACADEMY.—LECTURE III.

(Continued from page 105.)

ANOTHER book which I must not pass by is a fine copy of the earliest edition, "Philibert de l'Orme's Architecture," bearing date 1857. Under the auspices of Catherine di Medici, he may be regarded as the introducer of the Renaissance into northern Europe. She came of a race eminently distinguished in the history of art; and the author in his dedication, eulogistically refers to her as delighting in architecture, and as sketching with her own hand the noble palaces which she caused to be erected.

It is curious to find at this early period the author groaning over the degeneracy of his profession, and complaining how few true architects there then were. Some self-styled architects were, he says, but mere "master masons;" whilst others were but geometricians, or men addicted to the literature, but neglecting the practice, of their profession. His imaginary portraiture of the beau-ideal of an architect savours of the quaint, allegorical, taste of his time.

He would represent an architect, he says (and there is an illustrative diagram of such a man), with three eyes;—one, for the observation of divine things and the works of God; the second, for the careful observation of things present and around him; and the third, for looking into the future, foreseeing, and so providing against, coming evils. He should also have four ears, indicating that it more behoves him to listen than to speak. Four hands should be given to him, that he might be the better able to do all that is required and expected that he should do; whilst his feet are to be winged, pointing out that he must be of quick intelligence and rapid in action. There are many other things worthy of observation in this curious volume, but I must hasten on to others.

I find a volume of original drawings by Carlo Fontana, formerly in the library of Paine, an eminent architect of the last century. It represents the state at that period of the Coliseum at Rome, and Fontana's supposed restoration of it, with his suggestion, certainly not a happy one, for the erection of a church within the area of the amphitheatre, to be dedicated to the Christian martyrs who suffered there. I need scarcely say that this monogram on the Coliseum is greatly inferior to that unpublished work on the same subject existing in the British Museum, to which I directed your attention last week. These drawings of the seventeenth century, by Fontana, are very neatly and ably executed, quite free from the dry hard manner prevalent among architects at a later date. The lines are in brown, and the shadows delicately indicated, with a cool, neutral wash, probably Indian ink, or some colour equivalent to it. This mode of execution was retained throughout the last century, for I find here a large folio volume, containing original drawings by Wren and others of his time, which are all similarly treated. Some also in the volume attributed to Inigo Jones are so executed.

The use of a brown outline with cool shadows was, I believe, pretty general among English as well as foreign artists, up to quite recent times; and it is, perhaps, doubtful whether the modern substitution of brown, sepia, shadows, with Indian ink outlines, can be regarded in any respect as an improvement.

Among the treasures which Sir John considered to be worthy of a place in the strong-room of his museum, I find a Roman missal of the early part of the sixteenth century, illustrated with miniatures of the greatest delicacy by Lucas van Leyden and his scholars. It is worthy of remark that all the architecture and ornamentation with which these miniatures are elaborately enriched are throughout very distinctly Gothic in style; late, it is true, but without any admixture of classic taste; and yet this artist died in 1533, and was therefore contemporary with Raffaello and Giulio Romano. The co-existence of two schools so remote in character and spirit, yet geographically so near, as Flanders and Italy, shows how little social intercourse could have existed in Europe at that period. Whilst admitting his merits and superiority to others of his school, Lucas van Leyden is described by Fuseli as "ignorant of light and shade in masses;" and his forms are condemned as "lank, meagre, and ignoble;" and yet this artist was studying and painting within what is now a day or two's journey from the easels of Leonardo da Vinci, Michelangelo, and Raffaello.

There are, I trust, few here present who are not aware of the beautiful work preserved in this same strong closet, known as the "Commentaries on St. Paul's Gospel," by Marino Grimani, illustrated by the beautiful illuminations of Giulio Clovio. This work,

certainly the gem of the collection, presents a curious contrast in its architectural accessories with that to which I have just adverted. The style is strictly Raffaellian, with medallions and arabesques such as we see in the loggia of the Vatican. I cannot pass from this magnificent and almost priceless manuscript volume without adverting to the elegant character of the handwriting. When we look upon the beautifully-uniform, clear, well-proportioned, deliberately-shaped, and, I would almost say, dignified, style of the lettering, and compare it with the caligraphy of the nineteenth century, in which the words look often more like the hasty unmeaning scratches of a bad pen than the expressions of a man's thought and sense, it must be admitted that the lapse of three hundred years has brought, in this respect, at all events, no improvements whatever.

Nor, perhaps, can this be wondered at when we find, as that eminent scholar, Mr. Panizzi, has lately proved, the great Bolognese painter, Francia himself, did not think it beneath him to unite the study and practice of typography with the highest efforts of a most gifted pencil.

Descending, now, 100 years, we come to the sketch-book of Inigo Jones; not the original book, it is true, but an admirable fac-simile of it, presented to Sir John by the late Duke of Devonshire, the owner of Inigo's own handiwork. It is not for me to dwell on this sketch-book, as it consists exclusively of studies of figures and drapery. The book bears date at Rome 1614, when the great architect was about forty years old. I cannot refrain here from adding that the motto which graces the first page of this sketch-book is "*Altro diletto et 'imparar non trovo*" (I have no pleasure but in acquiring knowledge), a sentiment which does high honour to Inigo Jones, and one which should never be absent from the mind of an artist, be he young or old. When a man has reached the period at which he imagines that he has learnt his art and needs no more teaching, he may rest assured that he has fallen fully into the sear and yellow leaf.

In an evening devoted to the literary bequest of Sir John Soane, it seems natural that I should not altogether abstain from touching, for, at least, a few minutes, upon that eminent professor's own peculiarities of architectural design. Although within these walls we very wisely abstain from the remotest criticism on the works of contemporary artists, that salutary limitation has long ceased to exempt Sir John's works from the free comment of the critic. Upwards of a quarter of a century has passed away since his death.

I have, however, no inclination nor intention here to use the lash. I would but remark, generally, that a constant endeavour to seek out picturesque effects, especially in the design of interior architecture, seems to have led to much of that eccentricity of manner which most critics are inclined to condemn in his works; although it may be found to have resulted in some ingenious combinations; and, perhaps, occasionally, in some original conceptions.

We are apt to attach too great value to that quality, "the picturesque." The application of the word is somewhat vague. It is a word of no very remote origin; for there exists, I believe, no word of equivalent value in any classic tongue; and certainly, there is no trace of any word calculated to convey the idea in the written records of Mediæval times; a fact which is, perhaps, the more remarkable as the quality which, probably, more than any other, characterizes Mediæval art is this same picturesque. To the best of my belief, this word was the invention of the writers on art of the period of the Renaissance. Its primary meaning is clear, although its application is, as I have said, vague and indefinite.

Whatever is especially well adapted for representation in a picture is said to be "picturesque." In that sense its special applicability to natural scenery is obvious; but it is also very properly applicable to those objects of art which, either from their form or colour, or from the combination of forms or colours that they may present, are particularly capable of being agreeably represented in a picture. Thus, an old or ruined building is usually more picturesque than a perfect and new one; for there is a hard dryness in straight lines and sharp angles, and a crudeness, and almost harshness, in bright colouring, which cannot be the exercise of any amount of ingenuity, be made so pleasing to the picture-loving eye as those more undefined lines and blended tints which almost necessarily characterize a ruin.

It is finely said by Byron—

"There is a power
And magic in the ruined battlement,
For which the palace of the present hour
Must yield its pomp and wait till ages are its dower."

And a somewhat similar idea is expressed by another poet—

"Time
Has moulded into beauty many a tower,
Which, when it frowned with all its battlements,
Was only terrible."

There is also a fruitful source of the picturesque in those combinations or compositions of lines of which the result is an ensemble or group of forms pleasing, though we know not why they please. To dwell on the picturesqueness of Mediæval art would be superfluous, and, indeed, trite; for picturesqueness is, as I have said, the special

and appropriate quality of that style of art: the groups of towers and pinnacles, and gables and chimney-shafts, which characterize it, are the very embodiment of the picturesque.

I think it may be more useful to you to point out for your observation how that far simpler and less pretending forms are susceptible of this attractive quality when treated by the hands of an artist. It is impossible to stray over that land of art—Italy—without meeting at every turn with plain farm-buildings, ordinary lodges—nay, sheds and gateways, of high æsthetic interest. Not that they have been purposely so designed to please, but the old Italian mind seems to have been so thoroughly imbued with artistic feeling, that they could not help imparting it to every common object they touched. Vague and difficult of precise definition as this word "picturesque" is in the painter's art, when applied to architecture it is certainly still more vague. We may readily enough say that monotony, uniformity, and severity of outline are opposed to the picturesque; and that freedom and absence from restraint and variety of outline are circumstances favourable to, and consonant with, the picturesque. Yet to say that these latter circumstances are essential to its existence, or that the former are unreservedly incompatible with it, would be going a great deal too far.

Can we, for example, venture to say that the Doric temple of Minerva at Athens is not picturesque? Yet symmetry and severity of outline are its special characteristics.

So in an ordinary modern London street we may find entire absence from restraint and a superabundant variety of outline; for every man builds as he likes; and so variety is carried even to excess; yet no one will quote Oxford-street or Fleet-street, on that account, as furnishing examples of picturesque architecture. In truth, I apprehend this very favourite, but somewhat unintelligible, word must be classed with the adjectives, grand, beautiful, and such like; words which address themselves rather to the feelings than to the judgment. Hence it arises that, in architecture, picturesqueness is a very dangerous object of ambition; for, if it be sought for by those who cannot feel it, there would be imminent risk of their running into ridiculous conceits.

Their abortive attempts at the picturesque seem to have the same relation to really and truly picturesque compositions that nonsense-verses bear to real poetry. Each may present the requisite combination of long and short syllables, and the legitimate number of them; but the one is empty and unmeaning, whilst the other may, perchance, be fraught with sense and genius.

Even among men who may really have some true feeling for the picturesque, there are those to be found who have a sort of maudlin love of it; leading them to an extravagant and morbid craving for it; to such an extent, I believe, as sometimes to affect even the religious faith of those who abandon themselves to it.

It may be uncharitable to doubt the reality of feeling of such devotees; and we are here all of us too well acquainted with, and too much alive to, the influence of the fine arts upon the mind and heart of men, to doubt their power of fostering a genuine religious sentiment: such an influence is, indeed, one of their most legitimate and salutary effects.

But every virtue has its sham: there is the courage which needs a dram to call it into existence: there is the charity which owes its birth to ostentation; and there is, as I have already intimated, the religious sentiment, which needs these external melodramatic appliances to stimulate it into active existence: its votaries need a picturesque architecture, and even a picturesque costume, for their sustenance; otherwise there is reason to fear that their pious zeal might wane and wax faint.

These, however, are but examples of a false and counterfeit feeling. Men's minds are curiously and variously affected. There are some more deeply affected by contemplating the lowly, unambitious village church, wholly wanting the attractions of sculptural art, than by gazing up at those vast petrifications of religion which have awed so many generations of worshippers.

Still, I repeat it, there is no denying the wide prevalence of that influence which architecture exercises, be it evidence of human frailty or of the potency of art; and it seems a very legitimate exercise of the witchery of art to practise those cunning devices by which she can be made to elevate the mind or touch the imagination. It is in truth the special providence of the fine arts to do so.

The kindred arts of poetry, of music, and of painting, have in all ages asserted their dominion over the mind of man; and have claimed to bring even his enlightened intellect within the sphere of their potent spells: surely, then, architecture neither abdicates its proper functions, nor forfeits its character for utility, when it aims at exercising over the mind the like mysterious influence.

But if it be true that such power belongs to our art, it behoves all who practise it to regard that power as a sacred trust, and not to risk its character by exercising its influence improperly.

After all, I believe that the most legitimate and the most wholesome exercise of the power of art is that which is inspired by truthfulness of character.

INAUGURATION OF THE EXHIBITION.

WITH all the *eclat* that could be contributed by an assembled multitude of 33,000, chiefly of the *beau monde* of Great Britain's metropolis, by the presence of royalty, distinguished diplomatists, and statesmen, clerical, legal, military, naval, and civic dignitaries, foreign ambassadors, &c., &c., accompanied by a monster musical display, at which 2,000 performers assisted to give effect to the recent compositions of some of our greatest masters, expressly prepared for the occasion, this great event took place on the 1st inst. The public had been previously well prepared for two difficulties, which should more or less act detrimentally—viz., the absence of Majesty from the ceremonial—a necessary consequence of the recent bereavement—and the incomplete arrangements of the interior of the building; and these were fully realized. Whether or not entirely owing to the former cause there was a total absence of anything like enthusiasm, we are at a loss to divine; but certain it is that with all the pomp and grandeur of the scene, that element was very palpably wanting, and the whole passed off with indescribable tameness. We are not disposed to unite with those captious hole-picking critics who never *could*, nor never *would*, be pleased at *anything*; but making due allowance for the shortcomings, the delays, &c., that must infallibly occur on an occasion of so vast a character, we are rather disposed to express agreeable surprise than disappointment at the order of the general arrangements. To very many thousands in the building, who had to console themselves by reading their programmes, the proceedings of the ceremonial were, of course, a matter of imagination, though *we* have reason to congratulate ourselves in being able, after enduring a thorough squeezing, to scramble to a position from whence a fair view was obtainable—a fact, however, which does not bear satisfactory attestation of the accommodation for the members of the "provincial" press, as Londoners would so designate us. Entering at the south-eastern tower at the junction of Cromwell and Exhibition-roads, an almost immediate view of the great Eastern dome is obtained, and connecting it with the Western, is the main avenue—"the Foreign and the British nave respectively." The effect of the Eastern dome, with the stupendous orchestra of crimson cloth-coloured benches, rising tier over tier, almost to its springing, and with the spacious platform at its foot, on which was placed centrally the *fauteuil* for the Duke of Cambridge—as representative of the Queen—with that for Prince Frederick William of Prussia (the Princess Royal's husband) on his right, and for Prince Oscar of Sweden on his left—surrounded by benches, in order of precedence, for the various other personages—was truly magnificent. A word about the building, which has evoked comment extended and diversity of opinions:—A very important feature of improvement before that of 1851 is the substitution of a *semicircular* for a *flat* ceiling to nave, without, however, desiring to convey an opinion of general superiority to its Crystal predecessor. The one, however, *had*, and the other *has*, its merits and demerits—the character and features of each being so dissimilar as to render a positive comparison almost impossible. We must note, as a matter of detail, that the absence of the diagonal bracing irons from the caps to the bases of each alternate main column, would have been a thing very much to be desired. Mr. Grace, the eminent artist to whom the work of decoration was entrusted, has performed it with thorough skill and taste, proving a most valuable auxiliary to the architect, who, by the way, is about the best abused man in the three kingdoms just at present. We think, however, he has succeeded fairly in his general design for the interior, but the exterior is supremely unarchitectural, conveying the idea of a great "horse repository," "railway stores," or some such structure, in which the artistic is mostly made to pale before the utilitarian. At about one o'clock the Duke of Cambridge, accompanied by the Princes Frederick William and Oscar and suite, arrived at the main Western entrance in Albert-road, and the ceremonial proceedings—which have been fully described through other sources—commenced. A procession—in which the Princes before-named joined, accompanied by the Duchess of Cambridge and Princess Mary, preceded by the Queen's trumpeters in gorgeous gold uniform, with the pipers of the Scotch Fusilier Guards maintaining a hideous screeching, by way of music, and followed by the Archbishop of Canterbury, Bishop of London, the Lord Mayors of London, Dublin, and York, Lords Palmerston, Russell, Derby, Granville, Clyde, Gough; Messrs. Disraeli, Gladstone, Tennyson (Poet Laureate), a host of nobility and foreign representatives, of whom the Japanese Ambassadors attracted most notice—was formed, and passed through the main avenues of the building.

The musical display was quite a festival in itself, Mr. Costa conducting during the performance of Meyerbeer's and Auber's compositions, and resigning his *baton* to Mr. Sainton for "the Ode" by Dr. Bennett (to words by the Poet Laureate, and published in our last number), owing to a private professional pique which unhappily exists between these two eminent professionals. Apart from

the merit of the respective compositions—to dilate on which we do not feel ourselves equal—the beauty of the scene was most impressive. The performers were placed "thick as bees" on the numerous benches, the wind instrumentalists occupying places at one side of the conductor, the string ditto at the other, the choruses of ladies and gentlemen above, the great drums occupying a prominent position in the centre. The black and white attires of the male civilian performers, the scarlet and white of the military, and the variegated colours of the ladies' dresses (like one vast bouquet), contributed a fairy-like appearance to the scene which "beggars description."

Casually glancing through the building after the ceremony had concluded, we were much struck with the defective arrangement of goods in the British nave, most unpardonable obstructions presenting themselves in various places. If even these were works of high art some allowance might be made, but in one instance is a structure "of toys," in another of "fancy soap," &c., &c., which we hope the Commissioners will see desirable to have removed to some more convenient position. Of the foreign powers, France is the most distinguished for her contributions, both as to quantity and quality. The Zollverein is also, as usual, prominent. Austria, Spain, Portugal, Belgium, Russia, Holland, Turkey, &c., &c., maintain their dignity suitably. In the British department, "military engineering" is a special object of interest, coupled with the productions of Sir William Armstrong, who has an important and conspicuous stand near the Eastern dome. Little praise, however, can be awarded in any regard to the drawings of "the Netley" and the Royal (Woolwich) hospitals close by. Some names of manufacturers familiar to us, and, through our columns, to our readers, attracted a hasty glance, and amongst them we meet first with Hart and Son, of London, and Hardman, of Birmingham and Dublin, who have two courts fully stocked with a variety of Mediæval manufactures in brass and other metals. Hart's court was decorated by Mr. Grace; the ceiling is excellent, but the sides—papered only—seem to have escaped due attention. Hardman's is unique and in good taste throughout. Messrs. Johnston Brothers, of High Holborn, another firm eminent in same line, exhibit a single gas standard 12 feet high, of uncommonly beautiful and appropriate design, by Mr. George Truefitt, architect; the quality of the manufacture, too, being unexceptionable. Mr. Skidmore, of Coventry, and the Coalbrookdale Company, display numerous works of high metallurgical excellence, the principal being the great and elaborate screen for Hereford Cathedral. These and others we shall revisit shortly, and give our readers further particulars.

In the picture and sculpture galleries and the annexes containing the machinery in motion, are sufficient subjects for the study of a whole life, and, indeed, we may add, that they are the redeeming, the most improving, and most valuable departments in this great world's fair, which, after all, is but a vast "commercial mart," on whose like, in all human probability, after this year, no living man shall look again.

OPENING OF THE ULSTER HALL, BELFAST.

THE new public hall, for some time past in course of erection in Bedford-street, Belfast, and illustrated in the DUBLIN BUILDER for April 1st, 1861, was formally opened on the 12th inst., in presence of some 1,800 spectators, and with a grand musical entertainment accompanying. We have before given particulars, but may repeat that the main hall is 188 feet long, 63 feet wide, and same height. At one end is a spacious orchestra capable of holding about 250 performers; and the fine, but small, organ of the Classical Harmonists Society has been erected in connection therewith. This instrument will, however, be replaced by a grander one hereafter. At the other end, and continued along two sides, is a gallery, supported on light metal columns, and with a handsome cast metal railing in front. Above this a range of semicircular-headed windows, with architraves springing from panelled Corinthian autes, perforates each main wall, and affords abundant light. The centre portion of the ceiling, which is offered in panelled compartments, and highly ornamental throughout, is horizontal, the sides being coved, with corresponding decorations. Various other apartments are likewise provided within the building, the general arrangement of which is said to be very satisfactory. The local journals speak favourably of the acoustic qualities of the hall, which were fully tested on this occasion. Some exception, however, is taken to the ventilation provisions, but of this we cannot speak authoritatively. The sunlights are numerous and brilliant, and manufactured on a new principle by the eminent firm of Messrs. Musgrave, of High-street. It is almost unnecessary to remind our readers that this structure was erected from designs, and under the immediate superintendence of Mr. W. J. Barre (late of Newry), of Belfast, architect, who gained the prize in a brisk competition. Messrs. Fulton were the contractors, and judging from accounts that have reached us as to the manner in which they performed their task, the result has proved most satisfactory to the

company under whose auspices the building was projected and matured, to the architect, and the public. In regard of this provision for a suitable and sufficiently spacious hall for public meetings and entertainments, the good people of Belfast have now admittedly the advantage of us Dubliners, and we trust their laudable example will inspire some of our enterprising capitalists to secure for the metropolis if not a better, at least as good, a building for the purpose.

ARCHITECTURAL CONFERENCE.

MAY we hope that something more practically tangible and definite will be arrived at during the proposed conference in London—on the 1st of July—of the Provincial Architectural Associations than has been hitherto attained by lengthy papers and vociferations relative to “architects’ grievances,” the maintenance of the dignity of the profession, &c. There is an admitted want of some code by which professional practice should be governed, intruders effectually excluded, and more orthodox acts and systems punished. We hail, therefore, with pleasure, the announcement, that “the alliance projected for mutual assistance and co-operation” will hold its first meeting on the date mentioned, and will embrace the Institute of Scotland, and the Architectural Associations of London, Birmingham, Glasgow, Liverpool, Manchester, and “the Northern.” We once had a “*Royal Institute of Architects in Ireland*” of somnambulist character, but “death” having untimely terminated its “*laborious career*,” we presume that in the proposed conference the interest of the profession in Ireland will be unrepresented. It need not, however, be so, if our humble aid be acceptable; and we purpose watching the proceedings personally.

THE FATE OF GALWAY.

In a very few days more the world will know the British minister’s ultimatum as to the Galway Transatlantic Packet Station, and, feeling as we do, the deepest interest in the prosperity of that most important town and its “good” people—a prosperity with which our national welfare is associated—we cannot but chime in, however feebly, our hope that the decision will be favourable. The local *Vindicator*, one of the most ably conducted journals in Ireland, thus advocates the claims of Galway:—

“Galway and the North are now linked together by rail. The linen manufacturers of Ulster have a large and growing trade with America. Time is money, and the communication between Galway and Boston and New York will bring their wares three days at least sooner to the market. The merchants and men of business of the North of Ireland are naturally, therefore, deeply interested in the success of the project, and their influence will, no doubt, have a powerful effect upon the Government. Leinster and Munster, also, we are happy to announce, are as staunch as the North. Nature has conferred upon us the privilege of being the nearest point in the British Empire to the New World, and all Ireland will assist us in taking advantage of that privilege. The star of Galway to all appearance, therefore, is in the ascendant. This ancient city, whose merchants, centuries ago, were renowned for enterprise and integrity, will take its place amongst the commercial centres of the world—the capital of the finest province in Ireland will yet be worthy of its ancient fame, of the prestige it enjoyed in the days of Spain’s greatness and glory, when Galway was better known to the merchants of Europe than any other port in the United Kingdom. A cloud has overshadowed us for a time. Our geographical position—now the hope of our coming prosperity—was the cause of our decline. We believe Galway is not only on the eve of rising to eminence, but that the rise of Galway will be the commencement of a bright era in the history of Ireland. The success of the Atlantic Company will inevitably result in the development of the enormous natural resources of the country.”

PROGRESS OF THE REGISTRATION QUESTION.

A DEPUTATION from the Sanitary Reform and Registration Committee opposed to the principles of Sir Robert Peel’s, proposed measure, waited on the Lord Lieutenant on the 7th ult., and presented a memorial to His Excellency to the effect that “in addition to the reports provided to be laid before parliament, there should be weekly returns made under the authority of the Registrar-general of the metropolitan district of Dublin, similar to the returns now weekly made in reference to births, deaths, and the causes of death, in the London district; also, that instead of placing the practical working of the measure in the hands of the police as intended, the appointment of district superintendents and registrars should be provided for, and that the principle of open competition should be acted on in making those appointments, so as to secure the services of those most competent to classify and distinguish the various plagues and pestilences which so frequently decimate the poor inhabitants of the various large towns in Ireland.

Mr. McEvoy (the Honorary Secretary of the Committee, always

zealous in a philanthropic and utilitarian cause, and able as zealous) urged that “the police would be well qualified to discharge the duty if nothing more were required than mere enumeration; but the requirements of civilization demanded something more, and it was therefore necessary that persons of higher educational qualifications than the police should be employed.”

His Excellency, in reply to Mr. Haughton, said that the police would be tried first, by way of experiment.

Dr. Barry said that, from their education and professional occupations *medical men* would have the best opportunities of obtaining reliable information. If there were accurate sanitary returns from every district, remedies could at once be applied to those in which the public health was lowest.

Mr. Cowan, on behalf of the house-painters of Dublin, stated that the operatives of that trade, and, he believed, of all the other trades, objected strongly to the appointment of the metropolitan police as inquirers. They would look upon it as a violation of their humble domestic arrangements, and would not be disposed to give that full and honest information which persons not in the force would be certain to receive.

His Excellency observed that this was not an original provision of the new bill, it was also comprised in the bill of Lord Naas. His Excellency having thanked the deputation for their suggestions, the interview terminated.

IMPROVEMENT OF THE MENDICITY INSTITUTION.

In the recently issued annual report of this body we find the following:—Since the year 1825 this institution has not received any permanent internal repair or outward decoration. The windows having fallen into decay, had this year to be renewed; the heavy dead wall and gates in front of the building have been replaced by an iron railing; the exterior of the building has been plastered in compo and a new parapet raised on the top, in place of a large metal gutter, which had become useless from time. All this has been completed at a comparatively small cost of £332 12s., under the superintendence of your architect, Mr. Butler.

TO THE EDITOR OF THE DUBLIN BUILDER.

WITH feelings of pleasure I read your notice of a proposed tradesman’s journal, “THE OPERATIVE;” also, your generous articles on “sanitary reform.” It may not be out of place to call the attention of my fellow tradesmen to the year ’43. At that period 52 regular trades associations were legally organized; they established a journal styled “*The Dublin Argus*,” it was the advocate of the rights of labour, the arbitrator between the employer and the employed, and in many cases settled important questions amicably, that otherwise would have ended in the fearful contest of strikes, which are injurious to all. Sincerely I wish that a few of my old associates of that organization will ponder over the benefits that will accrue from a trades’ union. It must be admitted machinery has made rapid strides through many trades, and left numbers of our fellow-men in idleness. I appeal to my junior brethren connected with the various trades that machinery has not clashed with to aid and assist; let selfishness rest in its natural tomb of oblivion, and to seriously consider on the present state of our native city. We cannot congratulate ourselves on a resident peerage; our gentry are principally of a professional and commercial class, therefore oppression on one branch of the human family is felt by all. Under such circumstances I take the liberty of suggesting that you summon a meeting of the representatives of the various trades, and submit a prospectus of “THE OPERATIVE” for consideration. In reference to the question of sanitary reform, I shall ever remember the name of that noble and liberal-minded man, Mr. J. McEvoy. On the opening of the Botanic Gardens, and the question of sanitary reform, he sacrificed his time and money; his exertions are beyond all human consideration; a debt of gratitude is due to him. You too, gratuitously, in your journal advocated the question of sanitary reform, while your brother contemporaries, many of them professing a liberality towards the working classes, have been silent on that important question. In return I hope the trades of Dublin will remember their generous friends.

JAMES WARD, Operative Painter,
President of the Regular Operative Painters’ Society.
4, Upper Mercer-street, May 7th, 1862.

RE-OPENING OF DERRY CATHEDRAL.

In addition to the particulars relative to this building already included in our recent notice of Derry, we collect from the local *Guardian* the following, which though in more glowing phraseology than we are accustomed to adopt—especially with reference to what is hardly more than an ordinary work in point of extent—nevertheless, displays a most commendable spirit:—

“The Cathedral having undergone extensive alterations and improvements was re-opened for the celebration of Divine Worship on

Thursday last, 1st instant, under the most auspicious circumstances. The important and extensive works, seen now for the first time thoroughly completed and perfect in their most minute detail, are such as to excite the admiration and approval of the most critical observer. The smallest minutiae of the finishing is in perfect keeping with the requirements of the style of the architecture employed, and the conception of the original design. Nowhere are the evil effects of that niggardly and parsimonious spirit, which is so strikingly apparent in too many of our public edifices, in the mutilation of design, and the curtailment of necessary details in the slightest degree observable. There is no sham—no attempt at deception; throughout everything is solid, substantial, and perfect of its kind. The improvements had their origin in a correct and cultivated taste. The general design is well conceived and happy in its effects. A most careful and judicious supervision seems to have been exercised in every particular, while the contractor and those entrusted with the execution of the works are entitled to the highest credit for the artistic and workmanlike manner in which they have fulfilled their several engagements. When we contrast the state of the interior of the cathedral in 1860 with what it is now, the magnitude and importance of the change become apparent. Then a rickety white-washed wooden staircase and broken flagging met the eye at the very entrance, useless and ungainly stoves blocked up the centre aisle; there were no stalls, save those for the bishop and the dean, which were incongruous in style, and, with the other fittings, and the high-backed double pews, served only to inconvenience the worshippers, and deform the body of the church. Dark and cumbersome galleries overhung the side aisles, destroying the fair proportions of the building, and rendering ventilation almost impossible. The dusty windows were filled with common glass, and the style of the several more modern works having no affinity with that of the original architecture, and the general appearance of the otherwise noble, though simple pile, was marred. Now, from the porch to the chancel, everything is in perfect keeping. Restored proportions, correct architecture, 'substantial appointments and appropriate adornments.' The timbers of the bell-ringers' loft left open and varnished form a panelled ceiling to the porch from which a graceful stairs enclosed with open quatrefoil tracery, leads to the western gallery. The arrangement of the inner vestibule is very effective, as seen from the porch through its two archways, the nave gains in apparent length, and a fine vista of the interior is afforded. The eye takes in at a glance the range of pillars and pointed arches on either side of the nave, the groined ceilings, with their illuminated bosses and corbels, the tiled aisles, the episcopal throne, with its cusped and traceried gables—its decorated finials, and handsome spirelet—the long range of beautifully outlined bench ends, terminating in finials, which afford in their carving examples of the best phases of mediæval art—the pulpit and reading-desks, massive and well situated—the communion rails, with the reredos at the extreme end of the chancel, its buttresses, traceried panellings, and effective cornice, with embossed capping, perfectly defined—the fine eastern window filled with stained glass of beautifully variegated design, the munificent gift of the lord bishop—forming a rich finish to the perspective. Over the whole is thrown, from the stained and tinted glass in the side windows, a subdued, yet mellow light, which gives a tone to the whole of the interior finishing, and harmonizes well with the hue of the costly oak of which the fittings are composed. We may add that the cathedral, though not fitted to sustain a comparison with those noble and massive piles which are the glory of the sister island, nor, indeed, entitled to rank higher than a first class parish church, is 'not without grace and dignity.' The designs were prepared by the late Joseph Welland, Esq., architect to the Ecclesiastical Commissioners, and the several works have been carried out in a highly creditable manner, under the superintendence of Messrs. Welland and Gillespie, architects to the Commissioners, and Alex. Hardy, Esq., District Inspector, by Mr. James Henry, of Belfast, the contractor. The several works in the painters' and decorators' department, as previously described, have been executed in a very artistic manner, by Mr. James Shannon, of this city. The cushioning and carpeting by Smith Brothers, Diamond, is in their best style. The tiling is Minton's encaustic. The hot-water heating, and gas-lighting arrangements have been very effectively executed by Mr. J. W. Smith, hot-water and gas engineer, London. The stained glass—one of the finest improvements in the cathedral—was supplied by Wailes, of Newcastle. Having already described minutely the eastern window, and those erected as Memorials to Governor Walker, Bishop Babington, Dean Gough, and the late lamented Sir R. A. Ferguson, Bart., M.P., we need only say, that in all these windows the designs are well-conceived, the figure drawing excellent, the grouping effective, and the colouring rich and harmoniously blended."

"The Honorable" Mrs. Winter is to deliver a lecture in Galway on the 19th inst., which will chiefly embrace the incidents so notorious in that lady's career.

WEXFORD HARBOUR.*

FORMED by an extensive estuary of the river Slaney, the harbour of Wexford is situated at the south-eastern extremity of Ireland, near the entrance to the Irish Channel. From its position, in a fertile county, which is watered by a tidal river, navigable for twenty miles, and is inhabited by an industrious and orderly people, this harbour, lying close to the track of the vast traffic up and down St. George's Channel, is admirably placed for commercial purposes, and would be tenfold more valuable could it be made a deep, open haven, capable of sheltering the thousands of vessels annually overtaken in its vicinity by destructive storms. From its proximity to England, being only forty-eight miles from St. David's Head, or within three hours by steam, it seems designed to be the connecting link between London and the south and west of this island, and thence with the North American continent. . . .

In 1846 the number of vessels of all classes that passed along this coast annually, was computed at 18,000. In consequence of the want of a haven, the loss of life and property by shipwreck was shown to have been enormous. During the thirty previous years 170 vessels have been wrecked on the Wexford coast; the loss of life was 270 persons, and of property, more than a million sterling.

This harbour has the natural defect of a very small rise of tide, an average of two feet on neaps, and four on springs. Outside on the bar itself, the water rises about two feet higher. Even out at sea, round Tuskar lighthouse, the average rise and fall is stated to be only six feet at neaps, and eight feet at springs. This deficiency of tidal rise, common to the south-eastern shores of Britain and Ireland, may be accounted for by the circumstances that not only is there an absence of the Atlantic waves, which have indented our western coast with vast havens, but that the tidal current which passes round the southern coast meets the tide that has run round the northern shore, and thus has silted up the channel and does not rise high. Under this irremediable defect, the harbour cannot easily be converted into a haven, a class of harbour distinguished from the tidal sort by superior depth of water, rendering it accessible for refuge at the lowest time of tide. However, so important are the advantages to result from the success of a plan for the improvement of this place, that the question has been mooted again and again by various interested parties. . . .

The number of engineer doctors that had been called in, up to 1846, was no less than twelve. The names of some of them are high in the profession, as Sir John Rennie, Sir J. Macneill, and Mr. Cubitt.—Besides civil engineers, a military one, Captain Vetch, wrote a treatise on the subject. Captain Frazer, R.N., and Sir G. Airy, also reported to Government. The most recent proposal, the fourteenth in point of number—the most elaborate, and in general opinion, *the best*, is by Mr. Farrell, who had, when he drew it up, the advantage of having been for five years at Wexford, as County Surveyor, a post which he still fills with distinction, and which professionally requires him to attend to this important local subject. Candour compels us to say, that the distinguished engineers who have reported on this harbour have dealt hesitatingly with the hope of improving it, being fully sensible of the doubts besetting any endeavour to control those powers of Nature which like the wind and shifting sands, are subject to no calculation.

It is, truly, impossible to predicate what would be the effect of interfering with the natural causes at work there. Yet, the results obtained under somewhat similar circumstances elsewhere may be accepted as guides.—Without invoking the genius which constructed the dykes of Holland, we may look at home, and see that the Liffey, a stream not half the size of the Slaney, was made a good harbour by the erection of one bold work—the North-wall. The improvements in navigation effected in the Clyde are wonderful. The navigable part of the river has been deepened within the present century from three to thirty feet. Consequently, the revenue increased from £3,000 to £95,000 a year; and on a spot where formerly a few fishing sloops and small traders unloaded their little cargoes, gigantic iron steamers and huge, tall-masted argosies crowd the stream. . . .

The plan proposed by the County Surveyor has these principal features. 1st. Widening the mouth of the harbour to three-fourths of a mile at high water, and dredging the bottom of the additional width out into deep water, 2nd. Forming the Dogger Bank into a permanent island. 3rd. Dredging Hantoon Channel, and thus obtaining the great advantage of two entrances, one from the north, and the other from the south, having Dogger Island between them.

On the first proposition, we may remark, that its design is to remedy the excessive velocity of the scouring power, which has sunk the channel to the needless depth of sixty-one feet.

The second proposition is based on the idea of restoring the shoal between the two existing channels to its condition at the time when those channels were deeper than they are now. Piles would be driven in round the eastern and northern sides of the

shoal, which would gradually assume the substance of an island, by the depositions from dredging and from storms. Unassisted nature cannot be expected to maintain deep channels through the bar. Wherever and whatever they were, they have been shifting and uncertain after storms, and have varied in depth from time to time. The island so formed would act as a breakwater to the south channel, which is the present sailing course, and would be dredged out to a width of 200 yards, and to a depth of eleven feet below low water of spring tides. With so redundant an hydraulic power at command, and with the aid of dredges, modern science should not be content with less than two channels, each having not less than twenty feet of depth at low water of neap tides.—Accordingly, the third item of Mr. Farrell's plan, viz., the obtaining two entrances to the harbour, one from the north, and the other from the south, offers, in our opinion, far preferable points to any other proposition, since it is axiomatic that, in every situation where it is easily practicable to make two entrances, it is well worth while to do so, provided one will be available when the other is inaccessible, for where there are two mouths, a vessel can either enter or depart by the sheltered one.

COMPETITION.

THE Directors of the National Banking Company of Ireland recently invited in limited competition plans for new offices at the new of present building in College-green, from Mr. Caldbeck, Messrs. Deane, and Chas. Geoghegan, architects respectively, and have decided on awarding to each of the two latter a sum of £50. We believe Mr. Caldbeck, who has built many handsome houses for the company in the provinces, and has consequently a prior claim, will have the carrying out of the work. Indeed it does not seem quite clear or satisfactory why other professional assistance was rendered necessary. The course adopted is somewhat unusual where there is a duly-appointed architect.

AN INDUSTRIAL PALACE AND WINTER GARDEN.

WITH the object of securing for Dublin a structure which may be used for either of the above purposes, or for both, a company under the Joint-stock Companies Act, and with a capital of £50,000, is progressing towards complete formation. Mr. B. L. Guinness (the munificent restorer of our venerable Cathedral) is the prime mover of the project, and with him are co-operating numerous noblemen and gentlemen of wealth and position in this city. With such an amount of pecuniary stability (the first necessary ingredient) and influence, there can be no question as to success. The site will be on Mr. Guinness's own property contiguous to Mathias' Church and Harcourt-street. When preliminaries are more forward we shall return to the subject.

PROCEEDINGS OF PUBLIC BODIES IN DERRY.

At a meeting of the Port and Harbour Commissioners, on the 2nd inst., a letter from Messrs. D. and T. Stevenson, engineers (accompanied with plans), with reference to the proposed embankment below the Graving-dock, was read to the meeting and referred to committee. A discussion took place relative to the Dundalk and Enniskillen Railway. A quarterly meeting of the Town Council was held on 5th inst., when the election of bridge commissioners was proceeded with. The town clerk read estimates for improvements proposed by the town surveyor amounting to £272 10s. The reports of "police and markets" committee, and of town lighting and improvement committee, were read and considered.

NEW PATENTS.

List of Letters Patent which passed the Great Seal on the 29th April, and 2nd, and 6th May, 1862; Messrs. Byrne and Lambert, agents, 4, Lower Ormond-quay, Dublin:—

W. T. Weston, for "An improved spring and fastening applicable to gates, doors, and other useful purposes."

M. Wiggall, for "Improvements in machinery or apparatus to be used in moulding and casting twisted nails, spiral fluted nails, bolts, and screws for sheathing vessels, ship-building, building, and other purposes."

L. F. Duval and L. A. Beaudet, for "A new process of tanning." J. Imray, for "Improvements in hinges."

A fearful accident has occurred on the London, Chatham, and Dover Railway, by which two passengers were killed, and three others so much injured as to render it almost a matter of impossibility for two of them to recover. The carriages became detached from the engine and tender and rolled down an embankment about 95 feet high.

Industrial.

THE annual production of Ireland is almost exclusively agricultural. The manufacturing industry is of little consequence. The population that has remained in Ireland is deteriorated. The best educated, the most energetic of the peasants have emigrated during the last fifteen years. Population is not the sole test of prosperity—it is one of the tests. Production of wealth is not the sole test of prosperity—it is one of the tests. The diminution of population, the diminution of cultivation, the diminution of domestic animals in Ireland, all show, that in the present struggle for existence, which all nations, as well as all individuals undergo, Ireland is beaten. One of the causes of the decrease of production is that the best of the peasantry under the present system emigrate. But the working of the poor law in Ireland has had a serious effect in degrading large numbers of the peasantry unable to emigrate. The system of administering relief only in the workhouses is, in my opinion, unfitted for a pastoral and agricultural country, and from various reasons the system has not worked well in Ireland, and has been one of the prominent causes in late years for the degradation of the peasantry. The poor house has been the lot of all the peasantry unable to emigrate. In the ruin represented by starvation, emigration, and judicial sales, the amount of human misery represented by the statistics of Ireland for the last fifteen years I trust will ever retain a melancholy pre-eminence in European history. I trust no other nation will suffer the same. The emigration from May 1, 1851, to December 31, 1860, was 1,163,418. Great distress was suffered before the host left this desolated land.

The desolate shore where the emigrant stands,
For a moment to gaze ere he flies from his hearth,
Tears fall on his chain though it drops from his hands,
For the dungeon he quits is the place of his birth.

The statistics of poverty are equally wonderful. In 1848 the extraordinary number of 2,043,585 persons received poor law relief in Ireland; in 1849 2,142,766 persons received poor law relief in Ireland. These last figures of themselves account for the decline in the numbers of the population. But whilst the peasantry have declined in numbers, have the upper classes in consequence been prosperous. The prosperity of Ireland is stated by the most eminent persons in the highest positions to have been progressively increasing since about the year 1805, and certainly since the year 1830. A vast quantity of English capital has been expended in the purchase of the property of insolvent Irish landowners; but I have yet to learn that sheriffs' sales and bankruptcy sales of the personal property of traders are the signs of a flourishing trade. If our great Dublin shops were sold off by the Sheriff of the City of Dublin, and their goods purchased by strangers, at a low valuation, no one would say that was a sign of progressive prosperity. The natural progressive development of a people has been rendered impossible in Ireland by foreign historical causes. The English and French middle classes and peasantry won their political and social liberties by the great insurrections of the fourteenth century, and by the revolutions of 1641 and 1688 and 1789. But it is the use of science to teach clever men to do rapidly what ages with difficulty accomplish by the involuntary action of mankind. Some future statesmen will peaceably accomplish for Ireland what prince Hardenberg did peaceably for Prussia, and will earn the blessings of every countryman who, under a more just system, will be able to buy shoes and stockings for his wife and children, and to have a piece of meat in the pot for their Sunday's dinner."

A discussion took place in the House of Commons on Saturday, the 10th inst., relative to the vote for £116,695 for the Science and Art department, including £7,017 for the Royal Dublin Society, and £5,062 16s. for the Museum of Irish Industry in Stephen's-green, Dublin.

Mr. Adderley, with reference to the letter, said it was undesirable that duplicate institutions should be maintained in Ireland, and drew attention to the fact that Sir Robert Kane, who also acted as president of the Cork college, was at its head. He hoped the government would take steps to let the Museum of Industry die out and become merged in the Royal Dublin Society.

Mr. Lowe said that the government would communicate with the Lord Lieutenant to ascertain whether the two institutions could be consolidated; at the same time it should be remembered that the constitution of the Royal Dublin Society was remarkable, and that prior to any change being made it might be necessary to have certain changes effected.

Mr. Cogan defended Sir Robert Kane, maintaining that he performed his duties in both capacities with perfect satisfaction, and concluding by expressing a hope that for a paltry sum of £5,000 a year the house would not give its sanction to the suppression of one

* I read a very able paper read by Mr. D. C. Heron, Q.C., at the Statistical Society, on Tuesday evening.

of the few institutions in Ireland which was established for the express purpose of developing the resources of the country.

Mr. Vance declared himself in favour of transferring the museum to the Royal Dublin Society, which, he believed, did ten times more good than the establishment in Stephen's-green, for which the country was asked to pay £5,000 a year.

Mr. Hennessy regretted that the Vice-President of the Committee of Council should have given the house to understand that he would make inquiries to ascertain whether the two institutions could not be consolidated. Did the house know who Sir Robert Kane was? He was the author of the celebrated work, "The Industrial Resources of Ireland," and it was impossible that a more competent person could be placed over any institute for developing the natural resources. There was a similar institution in London, the Museum of Mineralogy and Geology, in Jermyn-street, maintained at a cost of £11,000 a-year, and another institute similar to that of the Royal Dublin Society, which cost £34,000 a-year. Why then, he asked, should the Museum of Irish Industry be done away with? He could not account for such a proposition receiving any favour from her Majesty's government, except upon the ground that, with the exception of the Premier himself and the Secretary of the Home department, there was not a single occupant of the Treasury bench who knew anything about Irish wants or feelings.

Mr. Dillwyn objected to the system in which the government was teaching art and to the gradual increase of those votes. He moved that the votes A B and C be reduced by the sum of £7,106.

After some remarks by Sir E. Grogan the committee divided, when the amendment was negatived by 111 to 48. The vote was then agreed to.

Mr. Buxton inquired whether, since the Botanic Gardens, Glasnevin, opened on Sundays, any of the plants had been injured, as was apprehended last year? Mr. Cogan said he was happy to be able to reply that no such injury had taken place, although sometimes as many as 15,000 persons attended.

[This speaks volumes in favour of the respectable and orderly demeanour of "our operatives," by whom, after their week of toil, this delightful sojourn is mostly frequented on Sundays.—Ed. D.B.]

THE WORKHOUSE AND THE PRISON.

FROM the Poor Law Commissioners report we collect the following:—The progress not only of destitution but of distress in the last three years, may be gathered from the workhouse relief lists, which, at the present date, exhibit an increase since the spring of 1859 of about 86 per cent. This increase, although a very serious one, does not appear to justify the alarm expressed in some quarters, that a famine analogous to that of 1846-47 is impending; and that the time of its greatest development will be in summer, the distress increasing in the meantime until it is arrested by the season of the potato harvest and corn harvest. So far from such being likely to be the case, it is our present belief, founded on the experience of past years, on the known abundance and comparative cheapness of food at this time, and on the good sanitary state of the population at large, that the time of greatest distress in this year is already past, and that a progressive improvement has already begun and will steadily go on until the time of the year (September) when the decrease of pauperism usually ends, and an increase again commences.

The Directors of Convict Prisons, in their last annual report, just published, say—"At Spike Island we have only thirty-two convicts, required to be employed at masonry and stone-cutting. We have to depend, therefore, on more ordinary and less skilled work, for which a lower rate of wages only can be charged. This sort of work, having regard to permanency, is, of course, the description of labour on which convicts may be expected to be employed. Skilled labour, however desirable when it can be obtained, cannot be reckoned upon as always available. If high wages are assumed for it, the real value of such convict labour will always be disputed. Our prison expenditure is very low. According to our present estimate, the convicts in our different establishments do not cost more than £24 10s. each, without deducting the value of their labour, which it will be seen by the reports of the governors, &c., is very considerable and satisfactory. It must be borne in mind that the reduced number of convicts in the establishments causes the charge per head to be greater than if the number was larger; because the salaries of the superior officers remain the same, and are spread over a smaller area. When our establishments were more filled, the cost per head of each convict was not so much as it is now."

OUR LAW NOTES.

Hurley v. Mahony.—This action, by a builder, for work and labour done and material supplied, was brought on at last assizes for the city of Cork, and referred by consent to the arbitration of the Recorder and Messrs. Richard Braash and Richard Evans of that city. Defendant is a local butter merchant, and employed plaintiff to execute certain works in the alteration of a dwelling-house on an agreement entered into for the sum of £80; besides

additions which were subsequently made, plaintiff furnished a bill for £271, being a labour and material account, alleging that it was impossible to identify the extra works or value them separately from the contract. Defendant lodged £100 in Court. The arbitrators, after three days' hearing and examinations of a number of witnesses, arrived at a verdict for plaintiff for £130, exclusive of £75 paid on account.

The Queen v. the Corporation of Limerick.—Application to Queen's Bench to make absolute a rule nisi for mandamus to compel defendants to carry on certain sewerage works, under their act, so as to carry off the deposits into the river Shannon. The proceedings were instituted on behalf of the Waterford and Limerick Railway Company, who alleged that at the time when the line was completed there were two quarries at the terminus, into which a sewer led, which it became necessary to close up. After that a sewer used to carry off the deposits, and was sufficient for the purpose until recently, when new streets having been constructed and the same drain used, the excess could not be carried off, and proceedings were taken against the company by persons in the vicinity. Counsel referred to the affidavit of the engineer of the company to show that there was a fall towards the Shannon, which would admit of an effectual sewer being made, and under the powers vested in the defendants they could execute the necessary works. The company were willing to make the enlarged sewer to the limits of their own premises, but they objected to join in the cost of the works beyond that, being exclusively under the control of the Mayor and Corporation. It was insisted by the company that an enlarged drain should be made by the Corporation beyond the terminus of the railway company. After some discussion as to whether the railway company ought not to contribute £300 to the £1,100 which the suggested works would probably cost, the application stood over to see if some arrangement might be effected.

Kearnes v. Moffit.—New trial motion, the question being whether the contract for the building of a wall was to be estimated by the English statute or the Irish perch. The Court allowed the cause shewn against setting aside the verdict had for defendant, and held that the jury had arrived at a proper conclusion as to what was the actual contract entered into by the parties, irrespective of the point whether or not two acts of Parliament regulated in the absence of any special agreement the measure to be adopted.

Templemore v. Moore.—Motion by plaintiff to increase amount of the verdict for £165 by an additional sum of £160. The question was whether in the action, which was one for injury to the reversion and also in trover, plaintiff was entitled to recover not only the damages awarded to him for the injury to ground which was valuable for building purposes, but also the worth of the soil taken away, and which had been used by the defendant in the manufacture of bricks.

Hurley v. Howley.—The plaintiff in this case refusing an offer of £100 damages and £100 costs, the court made an order for a new trial.

Donegal v. the Belfast Water Commissioners (Rolls Court).—Appeal from order of Master Brooke made on 25th April, in a suit by Lord Donegal against the Belfast Water Commissioners for the specific performance of a certain contract relative to the supplying of water by Lord Donegal for the town of Belfast. It was referred to the Master to inquire and report whether since the agreement between petitioner and respondents in 1840 (which was in effect that, for supplying certain waters, the petitioner should receive £550 a year), the petitioner had granted away any of the waters on the estate contrary to the agreement, or whether any of the waters or rights to the subject of the agreement had been alienated by Lord Donegal. Respondents had power to take only portion of the waters the subject of the agreement, and they alleged that the agreement which petitioner sought to have specifically performed was incapable of being performed. The Lord Chancellor decided that the annuity might be apportioned so as to give petitioner the proportion he might be found entitled to for so much of the waters as had been supplied to respondents. From this respondents appealed to House of Lords, but meantime plaintiff, as he was entitled, was proceeding in the Master's office under the order of reference. On the 24th of January last Master Brooke made a ruling that both parties should be at liberty to prove their cases by affidavits, which should be filed before the 15th of April. It was stated in support of the motion for extension of time, that by reason of the absence in London of Sir John Macneill, who was fully acquainted with the whole subject of the Belfast water supply, and whose assistance was indispensable, the affidavits could not be filed against the 15th of April. On the 12th April an application was made to Master Brooke to extend the time under the circumstances detailed in the affidavit, which went to show that respondents' solicitor had made every exertion to get the assistance of Sir John in proper time. Master Brooke refused the motion, and the respondents now appealed. It was stated in a further affidavit that Sir John Macneill and two other engineers have been, and are at work in Belfast, preparing the materials for the case. Mr. Brewster, Q.C., opposed.

The Master of the Rolls, in giving judgment said "there was strong ground for not interfering with the order of the Master, which order he would not set aside; but that he would allow the respondents to file an affidavit from Sir John Macneill, before the first day of next term. The Master to be at liberty to allow the *visu vocis* examination of any witnesses he might think fit.

Ollis, appellant; Corcoran respondent.—Appeal from judgment of Court of Exchequer. Action originally brought by Messrs. Corcoran, of Fethard, builders, against Mr. George Ollis, clerk in the Ordnance Office, to recover £283 18s. 9d. for work done, materials provided, and money paid by plaintiffs for defendant's use in building two houses in King-street, and one small house in Abbey-street, in the town of Fermoy. The defence was, that the work was not completed and finished by the plaintiffs according to contract. Plaintiff, by replication to defence, alleged that after the work was done, and the materials provided, the defendant accepted both. The trial took place at the Clonmel Spring Assizes in 1861, before Mr. Justice Christian. After evidence defendant's counsel submitted that there was no proof of acceptance by the defendant of the work and materials, and called on the Judge to direct a verdict for him, who declined to do so, and left the question of acceptance to the jury, who found for the plaintiff with £200 damages. Defendant, pursuant to leave reserved by the Judge, obtained a conditional order to set aside the verdict, or enter it in his favour, or that a new trial should take place, on the ground of a misdirection. Cause was shown by the plaintiff, which the Court allowed, with costs. Against that rule the appeal was brought.

The court affirmed the decision of the Court of Exchequer. Judgment for the respondent, who, as plaintiff below, maintains his verdict.

Notes of New Works.

An ornamental stand-house, capable of holding 100 persons, is to be erected in Stephen's-green; and the Committee offer a premium of £5 for the best plan.

The handsome edifice erected on the verge of our lake, by Lord Viscount Dunlo, is (according to the *Loughrea Journal*) now nearly complete, and reflects great credit upon the contractors, Messrs. O'Brien and Keller, of that town. The effect of the view is most pleasing, as seen from the town and opposite side of the lake, and needs only a little woodland scenery to render the landscape at once picturesque and attractive.

The directors of the Finn Valley Railway Company report considerable progress during last six months. The erection of suitable buildings has been under consideration. It is not expected, however, that the line will be opened for traffic on the day named—viz., 31st of July, but as the contractors incur a penalty of £100 per week there can be no doubt that they will use their utmost exertions. The superstructure of the Finn River Bridge (200 feet of iron girders) is in course of construction, and will be ready for erection next month; Mr. J. Bower, C.E.

A design for Stranorlar Terminus, by Mr. Clayton, of Brixton (London), has been adopted, and will cost about £1,500.

Three coastguard stations are to be built at the island of Achill, county Mayo—viz., at Keele, Darby's Point, and Bull's-mouth, according to plans furnished by the architect to Board of Public Works.

Plans are in preparation for a handsome new Provincial Bank, in the city of Cork, Mr. William Murray architect.

The building season has set in fairly in this city and suburbs, but the unfortunate state of affairs in America will, it is thought, deter speculators to some extent, and raise the price of materials.

A very handsome new organ, erected in the Catholic Church of St. Auden's, at a cost of £1000 (Mr. Walker, of London, the builder), has been completed and dedicated.

It is proposed to extend the Great Northern and Western Railway of Ireland to Ballina.

The extension railway to Claremorris will be opened for public traffic on Monday next.

ECCLESIASTICAL BUILDING NEWS.

Castlerahan (county Cavan).—The Protestant Church is to be rebuilt under the direction of the architects to the Ecclesiastical Commissioners.

Castletown (county Dublin).—The present church accommodation being found inadequate, it is proposed to enlarge, and plans, &c., have been prepared by the Ecclesiastical Commissioners' architects.

Rossmore.—The committee for late Lord Rossmore's memorial stained-glass window, intended to be erected in Monaghan Parish Church, offer £5 for best design for same, omitting pictorial representations, but comprising chiefly the "family arms," with commemorative inscription. The dimensions are 20 feet height and 10 feet width.

Moiville.—A new Presbyterian Church is to be erected, according to plans and specification, by Messrs. Ferguson, Frazer, and Ferguson, architects, Derry.

STATUES AND MONUMENTS.

The subscription list for the proposed statue to the late Edmund Burke is progressing satisfactorily. Mr. Gaskin, the promoter, deserves much merit for the energy with which he pursues his object. Amongst the recent contributors are the Right Hon. Joseph Napier and James Whiteside.

The first stone of the statue to be erected to Camoens in the square bearing his name is about to be laid in Lishon.

A monument, in white marble, has been erected in Buncrana churchyard over the grave of two sailors who were lately killed in H.M.S. Trafalgar, during a storm off the Donegal coast. The monument, which is appropriately designed, and bears a suitable inscription, was erected by the crew of the ship. Messrs. Hutton and Barnes, of the Strand-road, Derry, are the sculptors.

THE O'CONNELL.—There is now every likelihood that this monument will shortly be brought to a point of completion. The delay that has arisen (says the *Clare Journal*) since the completion of the column was owing altogether to the failure of the two first blocks of stone that were taken from the quarry, but now that a third has been found which will answer for the statue, and which is at present in the hands of the sculptor, the committee are sanguine that no further obstruction will be offered to the due and proper execution of the work. We (same journal) have authority for stating also that the sum Mr. Considine promised to raise for the payment of the sculptor will shortly be in the hands of the treasurer, and that no time will be lost in getting the other arrangements perfected in a satisfactory manner.

The Irish Great Northern and Western Railway bill has been read a third time and passed.

The Dublin Waterworks Committee report that the Economic Assurance Company have paid in the remainder of the sum agreed to be advanced by them on your debentures to complete the loan of £50,000, for which sum twenty-five debentures, of £2,000 each, have been issued.

The duties of the Royal Irish Society for Protection of Life from Fire, together with the fire-escapes and other properties, have been transferred to the corporation of this city.

At a recent evening literary meeting of the Dublin Library Society Dr. M. Barry read a valuable and interesting paper on the registration of births and deaths in Ireland, and commented on the necessity of having a system of registration established in this country similar to that which at present exists in England.

The question of closing the Kill-o'-the-Grange graveyard came on for discussion on yesterday, before the Lord Lieutenant, the Lord Chancellor and the Recorder in council, but it seeming likely that a satisfactory arrangement would be come to if an adjournment took place, such was accordingly agreed to *sine die*.

A special meeting of the shareholders of the Waterford and Limerick Railway will be held in Waterford, on to-morrow, for the purpose of considering the bill now pending in Parliament to authorise the company to divert their tramway in the city of Limerick, and to work or lease the Limerick and Ennis line.

The Victoria Hotel at Chester, immediately opposite the railway station, and recently much damaged by fire, has been raised an additional storey, and will soon be ready for occupation. An external construction of timber and glass, forming a covered passage from the railway, and a landing for luggage, has been added.

Mr. George Furness, one of the contractors for the great metropolitan out-fall works, has obtained a contract for paving and draining the city of Odessa. The works are to cost £800,000, and the ultimate expenditure for improvement will probably involve an outlay of £1,500,000.

A REVOLUTION IN MASON WORK.—There is now in process of completion, in the establishment of Messrs. Munro, founders and engineers, Arbroath, a machine which, it is believed, will entirely revolutionize the mason work of the present day. Mr. Hunter, formerly of Leysmill, and now of Dean Forest, the inventor of the stone-planing and patent ridge-dressing machines, has invented another so elaborate in its motions that it will perform with speed, accuracy, and regularity of finish nearly the whole of the mason work—hewing, dressing, &c.—now executed by hand previous to the operation of building. It will plane, dress, and polish stones, work out checked rabbets and window sills, and do almost everything appertaining to plain masonry, giving to ashlar work an ornamentation quite unique.—*Arbroath Guide*.

THE EMBANKMENT OF THE THAMES.—A return is made to-day which shows the estimated cost of carrying into effect the provisions of the Thames Embankment Bill, including compensations and all other expenses; their cost is stated to be £1,500,000. The cost of the approaches to the embankment is estimated at £80,000; that of the streets between the embankment and the Mansion-house, including compensation and all other expenses, at £500,000.

Miscellaneous.

THE LATE MORTALITY FROM ARSENICAL PAPERHANGINGS.—Mr. J. Humphreys, coroner for Middlesex, concluded an inquest on Wednesday, respecting the death of Anne A. Turner, aged three years, who, it was alleged, had died from the inhalation of poison from arsenical paper-hangings, at Tomlins Terrace. The parents of the child resided in the house in question, where one of the rooms had been papered about Christmas last, since which time the whole of the family had been seriously ill, and *four of the children had perished*. Dr. Orton, the officer of health, was called in, and he discovered that the deceased had been suffering from all the symptoms of arsenical poison. He examined the room where the children played, and found that the paper which decorated the place contained a great quantity of arsenic. After hearing the evidence which established this fact, the jury returned the extraordinary verdict of "Natural death." The coroner said he dissented from the verdict, but recorded their finding on the inquisition paper, to which the jurors affixed their names, to the astonishment of a crowded court.

LOUGHREA TOWN HALL.—The want of a town hall here having been long felt by the public, it is proposed by the Marquis of Clanricarde to erect a suitable building on the site of the Old Linen Hall in Barrack-street. Plans have been procured from Mr. Roberts, C.E., county surveyor, Galway, under whose direction the works will also be carried on. The extreme dimensions are 108 feet by 88 feet, exclusive of the caretaker's residence in connexion therewith. The ground floor is principally occupied by a market-house, and the first floor by assembly-rooms, or a ball and supper-room, as occasion may require. The facework of the lower storey will be executed in punched limestone. The quoins and dressings of doors and windows, and the segmental arched recesses—in which they are built—will be of chiselled limestone. The upper storey, between the limestone quoins, will be finished in plaster. Mr. Henry Stone, of Eyrecoort, builder, has entered a contract for the erection of the building at an expenditure of £1,500.

MIND AND MATTER.—It is shown that a man of one hundred and fifty pounds weight could not exist without being supplied with a quantity of food containing nitrogen equivalent to 300 grains of urea. The whole of the motive power developed during the decomposition of this amount of food, or of the tissues into which it is transformed, is employed in carrying on such operations as the circulation of the blood, the working of the heart and lungs, and other vital processes. In this case we can fully account for the motive power developed during the decomposition of the food—it is converted into heat and motion. The force set free by the decomposition of the food, or of its equivalent in tissues, which carries on the *Opus mechanica* is also fully accounted for; but what becomes of the force liberated during the decomposition of that portion of the food of the thinking man, which is employed in the *Opus mentale*? Surely the heat, and the light, and the other forces expended in grouping together the elementary constituents of the food, are not destroyed within the annual mechanism. If mechanical philosophy teach truly, it is as impossible to annihilate force as it is to annihilate matter; but there certainly does appear an annihilation of force in the case of the food consumed by the brain-working man—unless, indeed, we suppose that the force which, in the case of a labouring man, merges into motion, is, in the thinking man, converted into ideas. This hypothesis is, after all, not much more startling than Dr. Elliotson's notion—that the brain thinks in the same way that the lier acetates bile.—*Professor Cameron on the Influence of Food upon the Intellect.*

AMALGAMATED SOCIETY OF ENGINEERS.—The eleventh annual report of this society, in which, besides engineers, are included machinists, millwrights, smiths, and pattern makers, has just appeared, containing details of the expenditure for 1861, together with a summary of expenditure for eleven years, and the tables showing the number of deaths, causes thereof, average at death, &c. The increase in the number of members, though not so great as last year, has been nearly 2,000. There are now very nearly 23,000 members, the steady increase in the number being adverted to as a strong evidence of the growing usefulness and popularity of the society. There are seventeen more branches than there were at the time of issuing the last report, two of which are in the United States, being the first branches formed in connexion with the society out of the British possessions. The increase of funds during the past year has amounted to £13,194, being larger than was anticipated under circumstances. The present balance is the largest which any previous report has shown, and largest amount per member—the total amount of balance now being £73,898 1s. 0½d., or £3 4s. 2d. per member. The expenditure for 1861 was £42,989, or at the rate of £1 17s. 6½d. per member. The number of deaths was 209 men and 116 women, the former at the average age of 36½, the latter of 33½. The cause of death is stated to be mainly consumption. The amount expended in support of the four principal benefits—viz., donation, sick, funeral, and superannuation, was £35,727, or equal to £1 1s. 3d. per member.

LIFEBOATS AT KINGSTOWN.—We (*Freeman*) are informed that the fishermen of both Kingstown and Bullock have refused to enroll their names as a crew on the terms given to similar crews by the Royal National Lifeboat Institution, and volunteers must be looked to to man the boat on any emergency. It is to be hoped that the fishermen gave the matter careful consideration before refusing to man a lifeboat on the terms offered, which are as follows:—On every occasion of exercise the men to be paid 5s. each, in stormy weather, and 3s. each, in fine weather, and on every occasion of going off to a wreck to save life, each of the crew to receive 10s. by day, and £1 by night, and equal shares of any local subscriptions which may be raised to reward any special act of gallantry or exertion. [We would add, that for the sake of humanity and the most philanthropic purpose of this most excellent Society, and again for our National honour, such a decision will be promptly reversed.—ED. D. B.]

ROYAL NATIONAL LIFE-BOAT INSTITUTION.—During the past month this institution had sent two new life-boats to Dublin Bay—one to be stationed at Kingstown, and the other at Poolbeg. Some satisfactory trials had been made with the boats on their arrival on the Irish coast. Another life-boat was building for Howth, near Dublin. A life-boat and transporting carriage were now ready to be sent to Kirkcubright, on the Scotch coast. The cost (£250) of the life-boat and her carriage had been presented to the society by a gentleman resident in Manchester. A full sized life-boat, belonging to the institution, is to be seen in the gardens of the Royal Horticultural Society, which adjoin the International Exhibition. This boat had been refused admission into the Exhibition by the Commissioners, although their naval superintendent had requested the society, on the 23rd ult., to send her to the building. During the past two years, the life-boats of the institution had saved nearly seven hundred persons from different wrecks on our coasts.

THE PICTURE GALLERIES IN THE EXHIBITION.—Next in popular attraction to the central aisle, from dome to dome, are the picture galleries—the long and splendid series of saloons, bright with the pictorial genius of all the modern world. The sourest of critics will find it hard to deny the merits of ample space and excellent proportions to the picture galleries. For lighting they are perfect; and by the judicious breaks in their length, keeping one vast saloon as an effective and simple hall, the designer has relieved the tedium of pacing in front of walls hung with pictures for many hundred feet. We are not sure that the colours on the walls is not too positive in green; but the greying effect of inevitable accumulations of dust will reduce and make this cooler. On entering, the airy beauty of the great saloons containing the pictures will strike every beholder with delight. Nor are our foreign guests less nobly lodged. France has the larger half of a magnificent saloon, in which our allies have arranged some of those stupendous works in which they delight. The Russians are also well represented, and thousands of persons will now for the first time set eyes on a real Muscovite work. The character of each country will be found visibly written on the surface of these walls. When the eye takes in, as it may do while we stand at the door, so many masterpieces of British art, it will not fail to recognize the peculiarly domestic character of the nation and the school. It is only on such occasions as this that the real characteristics of our art become strongly perceptible. In the choice of subject—a very important indication—it is astonishing to see how homely we are compared with our classical and military neighbours—how very few big, heroic pictures of the grand style can be found amongst us. Most of those existing are conspicuous as failures. It is evident that we shine at home; our heroisms and our beauty seem kept for home use; and our artists labour in the feeling that makes the most pathetic of our songs home-songs, as our sea-songs, although sung under all skies, have ever been. There seems to be no place like home, with an English artist, or with an English Eton boy or sailor.—*Athenæum.*

VALUATION OF RAILWAYS.—The Hon. Mr. French, Chairman of the county Dublin, has made his decision upon the appeal brought before him by the Dublin and Drogheda Railway Company against the increased valuation of their railway by the Commissioner of Valuation. The Chairman has dismissed the appeal and confirmed the valuation of the Commissioner.

THE DUBLIN MADRIGAL SOCIETY.

The next, and last concert for the season, is announced for 26th inst.; the principal artistes being the Misses Julia Cruise, M. Barry, and W. Hodges (first appearance), Messrs. A. and W. Talbot, Topham, Tracey, R. Smith, and O'Rourke. In the second part, Donizetti's *L'Elise D'Amore* will be given. A delightful evening is inevitable.

NOTICE.

The Proprietor requests that Advertisers and Subscribers for past year who have received accounts, also such of the latter as desire to favour by retention of their names on the list for current year, will please remit amounts to the Publisher, Mr. PETER ROE, 42, Mabbot-street, Dublin, in whose favour Money Orders should be made payable.

The Dublin Builder.

VOL. IV.—No. 59.

NOTES ON THE SANITARY CONDITION OF MULLINGAR AND ATHLONE.

RENDING a proposed inquiry into further particulars connected with these important towns, and which will shortly be included in our "Towns' Survey" series, we note the following relative to their sanitary condition. Judged by the official statistics of mortality, these towns are defective in a sanitary regard. Athlone, which is situated in Westmeath, forms, with Mullingar, the "civil section" of that county, being so denominated in the Report of the Census Commissioners for 1851, and having a united population amounting to 8,330. The conclusion is borne out by a fact ascertained by instituting a comparison with London, where, in the year 1850, the mortality in the metropolitan district, as ascertained by registration, was 1 in 47, which, on a population of 8,330 persons, would be 177, and that is the number of deaths which should have occurred in Mullingar and Athlone had they been as healthy as London. Now, what was the number? The people of those places, in filling up their census papers in March '51, returned the number of deaths in their houses in 1850 as no less than 216, or 39 in excess of the London rate! We can conceive a reason, and a good one, for a contrary state of things to this. We can well understand why, in a densely populated city such as London, there should be a less healthful state of things than in small country towns, but the converse must surprise and alarm. Those 39 deaths in excess were those of the victims in Mullingar and Athlone to the *bad sanitary arrangements* prevailing there; the cess-pools, the badly-ventilated houses, the absence of an efficient drainage system, and, perhaps (for they generally go together in towns), the drinking of water *poisoned by animal and other filth*, have as certainly caused the deaths of those 39 poor victims as if they had been foully assassinated. The most skilful of the Italian poisoners of the 16th century operated on their victims slowly and imperceptibly. No one was horrified by the suddenness of the doomed one's exit, neither was there blood or wounds to appal the senses. How forcibly may the same remark be applied to the results in the cases in question; the murderer actually harboured by his victims, surely but slowly and openly doing his deadly work. When will town commissioners and others morally responsible before God and man for the lives of those who fall untimely victims to their neglect in enforcing observance of the common laws by which Nature should be ruled, become sufficiently impressed with a conviction of the paramount importance of their duties? When an account of some diabolical murder or attempt to kill is chronicled in the organs of general news, feelings of horror are engendered and publicly and universally expressed; but when wholesale destruction of human life is perpetrated through the causes above enumerated, and clearly proved by facts and figures, the occurrence is lightly treated, and the means for preventing a repetition or continuation are unsought for. Further looking into the statistics of the county Westmeath, we find that in 1841 the total population was 141,300—viz., 131,316 in the rural, and 9,984 in the civic district; whereas in 1831 it was only 90,856, being a decrease of 50,444. This discrepancy, as regards the rural district, may be accounted for by emigration chiefly, but in the two principal towns the cause is mainly attributable to the facts above referred to. Indeed there is nothing else to justify it, either in the geographical position of the towns which are in the midst of a great agricultural district, diversified by hills, valleys, and lakes, and where rude health ought to hold dominion, nor in the character of the occupations pursued by the inhabitants themselves, which, unlike those in numerous manufacturing towns through England, are rather conducive to longevity than otherwise. It is but reasonable to assume that in an important town such as either of these in question, the portions occupied by the poorer classes must, in spite of the most rigid supervision, be more or less defective in sanitary matters, but where such results are shown, as the figures quoted clearly prove, the evil must be superlatively predominant. May we hope that even by thus drawing attention briefly but earnestly to a subject of vital moment, before entering more minutely into this and others connected with the welfare of these towns, we shall have paved the way to some good results?

THE PROPOSED EDMUND BURKE MEMORIAL.

THE Lord Lieutenant, in the course of some observations, after listening to the learned and eloquent oration of Ex-Chancellor Napier, on Edmund Burke, delivered at the Metropolitan Hall, on the 28th inst., spoke in the following terms:—

"It would be almost superfluous for me to tell you how heartily I sympathise in the project of raising a statue to Edmund Burke within the Irish capital; and if I have not taken any more immediate action at the moment it is because I hardly care to embark in one undertaking while another which has been so long—I had almost allowed myself to say too long—in progress, that of erecting a statue to Oliver Goldsmith, has not yet been fully accomplished. However, I trust this is nearly at hand; and when it is done I hope that there will be no slackness in the laudable endeavour to adorn the noblest sites and thoroughfares of this metropolis with the fittest ornament—the likenesses of her greatest men. I know that some persons for whom I entertain a high respect have already meritoriously exerted themselves in furtherance of this design, and I am sure they will not lose sight of what I consider a necessary ingredient in its success, that they should act in close co-operation with Trinity College. Let us place in corresponding position in front of its honoured walls the gentle poet and the glowing orator, of whom there is no city and place of education in the world who ought not to be justly proud. And of one of these, of Edmund Burke, the greatest in his line, we cannot have received a more appropriate and powerful reminder than has been supplied to us this night by Mr. Napier. And I accordingly call upon you heartily to adopt the vote which I now propose to you—'That the marked and hearty thanks of this meeting be presented to the Right Hon. Joseph Napier, for the admirable lecture which he has this night delivered.'" Seconded by Judge Berwick, and passed with acclamation.

THE "INSPECTOR," AND "SUPERNUMERARY INSPECTOR" APPOINTMENTS.—ECCLESIASTICAL COMMISSIONERS.

IN answer to numerous enquiries from candidates for these situations, we beg to say that the result, when *officially* notified, will be published in this journal. Some of the enquirers seem to think that we ought to acquaint them beforehand, but it must become obvious, on a little consideration, that if even we had *private* information it would be most indecorous to impart it in anticipation, through a public medium.

PROFESSOR SMIRKE'S LECTURES ON ARCHITECTURE AT THE ROYAL ACADEMY.—LECTURE III.

(Continued from page 121.)

I do not mean that the brewhouse or the laundry, when unavoidably forming part of the landscape, may not most legitimately have their homely domestic uses veiled under some more pleasing forms than those afforded by the undisguised smoke-flue or the ventilator; but in buildings demanding architectural character I am confident in the opinion that by giving to each the expression that most befits it, we secure for it at least the one great merit of truthfulness of character. The tale that is most truthfully told is usually that which most effects us; and although it is not to be desired that the conventional forms and structural necessities, which an architect has always so largely to contend with, render it vain and futile to attempt to give a building all the expression of which the painter's or the sculptor's work is susceptible; yet our art would little merit the position which it is admitted by all to hold as a fine art were it unable to affect the imagination, and, to a certain extent, the passions. It is, I apprehend, more than a mere figure of speech to say that a building frowns on us or smiles on us, or that it appears to attract or repel us. There is one building a majesty that subdues us, in another a levity that even amuses us. There are some buildings of so festive a character that in their very aspect they appear to sympathize with us in our joy; whilst others, on the contrary, are of an aspect congenial with an opposite tone of mind.

These are the qualities which constitute character in architecture; and, therefore, as I have said before, so do I repeat now, the character of his work should ever be one of the chief studies of an architect. But I perceive that Sir John's aspirations after the picturesque have led me into too long a digression.

There are other peculiarities in his works on which I need not especially dwell; for, whatever may have been his faults, they have not been imitated by others; and have not, therefore, influenced his successors either for good or evil. There were so many of these peculiarities or eccentricities in his manner of designing, that I am inclined to believe that he was ambitious to found a style of his own. Without, perhaps, venturing to go so far as to condemn altogether

any such attempt; I would, at all events, say that to found an original style of design in architecture would be a task demanding a very high rank of genius; and it is an enterprise which I certainly counsel no man to undertake.

I believe it was some vague and weak ambition of this nature which led Mr. Dance to conceive and execute so unfortunate a design as the front of the Guildhall of London. There is a tradition that such was his aim. He sought to produce a kind of cross between Gothic and Classic art; and the result was certainly not such as to tempt imitation or to enhance his fame.

I am convinced that no novel manner of designing which has deserved to be dignified with the designation of a *style* was ever the production of any one artist. It has ever been from the force of circumstances that styles, in one art at least, have gradually taken their rise. I need scarcely point out to you how greatly collateral circumstances; and accidental and local peculiarities have, at all times, and in all countries, influenced the changes of style that have taken place in architecture. Of this, however, I took occasion in a former lecture to point out to you various notable instances; and many others might readily be adduced.

One of the ablest, as well as one of the most recent writers on the subject of the so-called Gothic architecture, M. Viollet le Duc, points to the use of small-sized stones as one of the special characteristics of that style; and nearly 200 years previously our own Sir Christopher Wren had made exactly the same observation. Both these writers point out how materially the style was modified and influenced by that practice. In the Middle Ages there were few good roads, and this rendered the cost of the transport of stone proportionately high; a cost still more seriously augmented by the inordinate tolls, private and public, then so often and so extensively, on some pretence or other, levied by the landowners, whether lay or ecclesiastical, through whose demesnes or territorial limits the stones had to be conveyed to their destination. These causes of expense operated to so great an extent as to render the materials used in a building usually much more expensive than the labour required in working and setting them. Moreover, the want of regular employment for men in those times, and the consequent low scale of wages, rendered labour a comparatively unimportant part of the cost of a building. From hence a state of things arose exactly the converse of that which exists at present, when the mason is often better paid than the clergyman; and when canals, railroads, and machinery have reduced the cost of getting and carrying heavy building materials to a small fraction only of that which prevailed in Mediæval times. The former state of things naturally led to, perhaps, nearly all the peculiarities of the prevalent style of building. There was a lavish expenditure of labour in deep undercuttings and perforations, and the intricacies of every kind which, above all things, distinguish Gothic work; and which are, in truth, essential to the full and complete development of it. At the same time, the cost and difficulties of the transit of freestone naturally caused the use of it in small blocks, as observed by Wren and Viollet le Duc,—a result which, of course, tended to encourage those very intricacies and delicacies which characterize Gothic carved work in general. Each boss and badge and crocket was usually a distinct stone: the capitals of the very largest pillars and piers were built up in courses of very moderate depth; each course of stone composing a distinct and independent band or tier of foliage or other ornamentation; whilst the shafts of columns, even in the largest structures, were, for the reasons I have adduced, usually of diameters measuring but a few inches.

In making these remarks I am very anxious not to be mistaken as making them with any view, in the slightest degree, to the disparagement of any special style. My aim is to show that, as the manner of building has always greatly depended on the particular circumstances of the time or the place; and as every phase of art has varied with the variation of circumstances; it seems as useless as, I think, it would be irrational to expect permanently to bring back architecture identically to any one past phase of the art, unless we can resuscitate and bring about again all the concomitant circumstances to whose influence that phase was due, and restore to it its special character;—a resuscitation which, I think, we may regard as of necessity impossible. At all past periods of our art every style has, in short, been the type of its own age, the result of that particular period which gave birth to it. The Byzantine style, for example, was the result of the grafting of an Oriental element on the Classic stock at a particular period of its existence. Had Byzantine succumbed to the West at an earlier stage of Classic art, the resultant style would probably have assumed a very different aspect.

Again, had not Peter the Hermit preached the Crusades at the particular period when a great æsthetic energy was developing itself in some parts of Europe, the aspect ultimately assumed by Mediæval architecture might, perhaps, have been very different from that which in fact prevailed.

It is the stage of civilization which a people may have reached, and the condition they may happen to be in, that determine the effect upon the arts of any great historical event.

To expect, therefore, to receive successfully in its integrity any style of art under circumstances wholly different from those which gave birth to that style would be to entertain an expectation inconsistent with the experience of all past time.

We may very easily repeat, to any extent, the examples of any period we may fancy; but such repetitions, although it is occasionally,—indeed, far too often,—the fate of an architect to be called upon to produce them, are mere travesties, artistic whims, so to speak, the relish for which on the part of the public taste is by no means indicative of a well-founded or sincere love of art; but, suggestive, rather, of the caprices of an unformed, puerile taste, which takes up or tosses away a style as a child would its toys, just as the fancy of the moment or the caprices of fashion may dictate.

I have thought it well to say so much, even at the risk of being reminded, perchance, that I am but repeating what I may already in another form, and on some former occasion, have ventured to say.

I am anxious to urge upon you, with all the emphasis I can command, that the modern tendency to repeat and perpetuate old forms, and thus to live, as it were, upon the wits of our predecessors; or, I might say, to feed upon the *rechauffés* of the past, is a mischievous tendency when carried to excess; destructive of progress, and leading inevitably to debasement. I would not, then, have you to look with undiscriminating reverence on the architectural productions of past times: let those productions be ever judged with reference to their age, and to the contingent circumstances of their existence.

In many respects the present age with justice may lay claim to the merit of having advanced as time has advanced. It has with truth been said that such has been the moral advancement of education and intelligence, that a poor child in a Sunday-school is in some respects better informed than the sages and philosophers of antiquity; and certainly much of what was called science by our forefathers has proved to be but foolishness. Nevertheless, we must admit that no such progress appears to have been made in æsthetic culture. Excellence in that branch of moral cultivation would seem to be independent of those circumstances on which excellence of most other kinds depends, and to follow some different law. On a former evening I adverted to the apparent anomaly that in the twelfth century, at a time when all Christendom was wrapped in the grossest state of moral and social tyranny, at that very period there existed in France a school of art which was then commencing to produce works which may, at the present day, be regarded as equal to those of the best days of antiquity.

Again, sculptors, as well as architects, are now, in the nineteenth century, endeavouring to rediscover the oldest principles of art; and to emulate, although *longo intervallo*, the works of artists who lived twenty-four centuries ago. We may seek illustration, too, in still another quarter. In Arabia a faith sprung up in the seventh century which deluged Europe with blood, and tended to inculcate a gross sensual system,—a faith which has raised the most formidable barriers against the moral improvement and civilization of mankind; yet it was to the followers of that very faith of Mahomet that we owe some of the most graceful works of architecture as yet produced, as well as one of the most beautiful styles of ornamentation that human taste or ingenuity has yet devised. In short, we get bewildered in a labyrinth of contrarities when we seek to assign the sources from whence has arisen that perception of beauty which constitutes fine taste.

However charmed, therefore, we may be by those manifestations of genius which past times afford us, our reverence for them need not be indiscriminate. We should endeavour to search out what is beautiful and worthy of our admiration and study; uninfluenced, as far as our weak nature will permit, by local, national, or sectarian prejudices.

It is from the high vantage ground of modern civilization that we should pass in review before us the works of all preceding time, and of every creed and clime; not however, by any means with a feeling of self-satisfaction or assumed superiority (for he must be, indeed, in a hopeless state who is not fully sensible of the inferiority of the present to the past in very many respects—so far, at least, as art is concerned); but rather let a due reverence for the works of past times be mingled with a sense of gratitude that so rich a storehouse of experience has been laid up by them for our use and benefit; and let us demonstrate our thankfulness by devoting all our energies, not to a dry, antiquarian, pedantic imitation, but to a painstaking endeavour to improve ourselves by searching out and studying those principles which may appear to have led artists of past times to so great excellence. Principles, remember, never change. To adopt, in conclusion, the language of a former eminent President of this Academy—language which, applied as it was to his own particular branch of art, seems, nevertheless, equally applicable to all art—“There may,” he says, “be new combinations, new excellences, new paths, new powers, but there can be no new principles in art.”

It is to the exact understanding of these, therefore, that our best energies should be directed.

THE DESIGNS FOR CARLISLE BRIDGE.

WHATEVER may be the result of this project—whether or not it may really secure a commodious and approachable structure in lieu of the present unsuitable, principal highway over the Liffey, and whether that most desired object shall be attained by the modification of the deformity, or by its total demolition and provision of a substitute—we at least must congratulate the promoters on their zealous exertions in that regard, as also the majority of the numerous professionals, some sixty in number, who, at vast labour and expense, have contributed a variety of suggestions, embodied in no less than *two hundred and twenty drawings*, including details, now open to inspection at the Royal Irish Institution in College-street. The hanging of these drawings has been very judiciously effected, a vertical compartment from floor to ceiling being, as far as practicable, allotted to each set, the principal design in each case ranged on a line with the eye of the spectator; the accessory drawings occupying the spaces above and below, and altogether forming a very important exhibition. Some of the perspectives are executed in the very highest order of water-colour painting art, while others, though less pretentious in style, are still highly meritorious, and the *indifferent* and the *bad* productions are in unusual mediocrity. As is a natural consequence, in all cases of competition, the ideas elicited are very varied, very opposite, and, we may add, with reference to a few authors only, very absurd, extravagant, and impracticable respectively; but, on the whole, much ability and taste are displayed, the Irish element participating therein in fair proportion. Numerically considered, and without prejudging the decision hereafter as regards *merit*, London occupies a most prominent position. There are also some excellent drawings from Manchester, Dundalk, Cork, Belfast, and elsewhere, as well as Dublin. The designs, embrace respectively stone structures of *one, two, and three* spans; stone and iron combined; all iron (excepting abutments) of rib, beam, and lattice girder construction. Elaborate ornamentation is by some authors employed, in the iron work designs especially, while, again, others provide even for a plainer structure than the King's Bridge; for a stone bridge there is somewhat the same diversity, one design, very beautifully tinted by a familiar hand, showing four campanile at the abutments with the "Albert Memorial," central on the roadway; another, two great triple triumphal arches, one at each end; others with equestrian figures, or sculptural groups on pedestals at the abutments, and with or without intermediate statuary. There is, however, only *one* design showing a modification of the existing structure, as originally proposed; and some of those providing for three arches are not at all dissimilar thereto in many points. It would be a work of no uncommon labour for the Committee to wade through this vast collection of drawings, and examine, diligently and impartially, the relative claims of each author to the prizes offered for "*good, better, best*;" and should they enter on the task without the aid of one or two professional gentlemen, we must say it will be most unwise at least, as it cannot be expected that commercial gentlemen, however intelligent, are competent to decide the questions herein involved. Our own opinions we reserve until the decision is known, when we shall give a description of the principal designs in *extenso*, for the benefit of those who cannot visit the exhibition.

ON THE PRESERVATION OF STONE, CEMENT, ETC.

THE preservation of stone has for some time past occupied the attention of scientific men, and is a subject of great importance, because, if a proper method be employed, the softer kinds of stone, such as Caen, Bath, &c., can be used for ornamental exterior work, reducing greatly the cost of labour, affording opportunities of finer finish, and more elaborate workmanship. A better effect of light and shade is obtained in mouldings by the use of these stones than if granite or limestone are employed, and the contrast formed between wall-stones of the latter kind and dressings and ornamental work of Caen, Bath, and Portland stone, is very pleasing.

The causes of decay in stone are various. Stone in which the particles are imperfectly combined, is more liable to disintegration than where adhesion is more perfect. In a large block of any oolitic stone the combination of particles is frequently unequal; this also applies to others, such as dolomite or magnesian limestone, limestone or granite. Any process, therefore, for the preservation of stone must effect this object—namely, a cementing together of the less perfectly combined particles. The constant action of water on stone is another cause of decay. The pores of the stone should, therefore, be filled with a substance which will render it particularly non-absorbent.

Frost, by freezing the moisture in stone, will cause it to split and exfoliate, particularly where the particles are loosely combined. Whatever, therefore, will prevent the absorption of water, and will also more perfectly combine the particles, will prevent the destructive action of frost.

There are also in the atmosphere, particularly of large towns, gases which destroy stone; these act chemically. The materials used for the prevention of their destructive action must be such as are not acted upon by these gases, and at the same time form with the substance of the stone they are intended to protect, such chemical changes as will enable its natural constituents to resist their influence.

Organic substances, such as paint, oils, &c., cannot fulfil these requirements. As soon as they are exposed to the action of the air, they themselves begin to decay. This is a fact known to all practical men. Houses require painting every two or three years, and stone buildings which have been saturated with oil, in a few years lose all traces of oil on their surface, and to a considerable depth below it. Silica or flint, in its soluble form, has been used with some success in dry climates. Silica is reduced to the soluble form when it is fused or digested with an excess of alkali, that is; flint mixed with an excess of caustic, potash, or soda, and melted in a crucible, or digested under pressure, forms, in the first instance, a glass which is soluble, and, in the second, a solution of glass. The presence of the alkali keeps the flint in solution, and when this is applied to stone or any absorbent surface, it remains in the soluble state as long as the alkali is in excess; it can, therefore, be washed out with water; damp and rain will dissolve it out. If, however, any other chemical substance acts upon it, so as to change the relations of the silica and the alkali, a new and insoluble compound is formed. It was at first considered that the carbonic acid in the air would effect this, but its action was so slow that in damp and rainy climates the greater part of the soluble silicate was washed out before it could be acted on by the carbonic acid.

Various reagents have been tried for the purpose of fixing the silica at once in the stone. Bearing in mind the requirements to be fulfilled by any process for the preservation of stone, as stated at the commencement of this article, it is clear that the reagents used to act upon the soluble silicate must form with it such compounds as will effect the combination of loose materials; that is, they must be crystalline or glassy. No powdery precipitate, however insoluble in itself, can combine loose materials, as its own particles do not cohere. If acetate of lead is used with silicate of soda an instantaneous decomposition takes place. The precipitate is, when dried, a powder, silicate of lead. If any soluble salt of lime, zinc, &c., be substituted for the lead, the result is the same, powdery precipitates of silicate of lime, zinc, &c., being formed. If, however, a reagent insoluble in water is used, the result is different; a hard mass is formed capable of combining loose materials, and of forming a hard waterproof coating on stone or cement. For example, if silicate of potash is mixed with alumina and carbonate of zinc, and sand, powdered pumice stone, or chalk be added, a compound is formed which is for a time plastic, and then sets into an extremely hard and compact mass, perfectly insoluble in water or dilute acids. If these materials be laid on stone or cement with a brush, when in the liquid state, they form a coating which adheres to the surface to which they are applied, and which admits of being tinted to any colour; in fact, a perfectly finished painting can be executed in this way, capable of withstanding the action of the weather in the open air. A soluble silicate, used with reagents of the class just referred to, fulfils all the requirements for the preservation of stone or cement surfaces. It combines loose particles, and renders the surfaces non-absorbent or waterproof. It, therefore, enables them to resist frost, and not being acted upon by gases destructive to stone, and forming chemical combinations with the stone or cement, it protects such surfaces from disintegrating influences. Inasmuch, however, as it is necessary, to not only *coat*, but charge the stone or cement—to a certain depth with the indurating materials—it is clear that for purposes of penetration, they must be used in solution as a perfect chemical union between the silicate and its reagents, as well as between both, and the stone itself is required. If alumina be fused with potash and the aluminate of potash, so formed, be dissolved in water, and if silicate of potash in solution (both the solutions being of heavy specific gravity) be mixed, a gelatinous substance is formed immediately, this in time becomes sufficiently hard to scratch glass; it is silicate of alumina. If, however, the solutions be made of a light gravity, they remain liquid for many hours, when they gelatinize and form a hard glassy mass of silicate of alumina. If hydro-carbonate of zinc be dissolved in caustic potash and added to the aluminate of potash, the double solution being mixed with silicate of potash, the apparent result is the same, the actual compound being a double silicate of alumina and zinc. This compound solution can be kept liquid for twenty-four or forty-eight hours if required, giving sufficient time to saturate with it, stone or cement, the constituents of the solution are carried to the same depth into the stone, and these cement together the loose particles, forming a hard and indestructible crystalline substance in every part of the stone. Its application can be continued till all the pores are filled up, rendering the substance impregnated

with it practically waterproof. Caen, Bath, or Portland stone, saturated with this compound solution, and allowed to dry, can be polished by the marble polishing process. Chalks, crushed Bath, or Caen stone, being mixed with it, re-combine, and can be moulded into any desired form, becoming harder and more enduring than the natural stone; being a colourless liquid, it does not destroy the colour or appearance of the stone, and its application is so simple that any workman can use it. Mixed with carbonate of lime it forms an opaque coating for stucco or cement, admitting any required tint or colour. With it, as a vehicle, stereochromic paintings can be easily executed, which will resist the action of the atmosphere. Stone walls, or walls covered with cement or stucco, can be rendered waterproof. The usual materials of which building stones and cement are composed—namely, carbonate of lime, carbonate of lime and magnesia, form, with silicate of potash, alumina, and carbonate of zinc, extremely hard and imperishable substances, similar to many minerals which occur in Nature without having any soluble salt which would effloresce.

Silicate of zinc and potash is insoluble; carbonate of zinc and potash is insoluble. Silicate of potash and alumina form insoluble compounds, which in time harden. Silicate of potash and alumina are the constituents of the mineral felspar. Silicate of soda may be used instead of silicate of potash, the results will be similar, the compounds formed analogous. Silicate of alumina forms very stable insoluble compounds with silicates of lime, iron, magnesia, potash, and soda. The materials known as Gehlenite, Humboldtite are among the natural compounds of this kind. Aluminate of zinc is a perfectly insoluble compound, which gradually becomes nearly as hard as the natural compound, which is known to mineralogists as Gahnite, which is harder than Quartz, and is insoluble in acid and alkaline solutions; aluminate of magnesia is a perfectly insoluble body, the artificial body is not dissolved by potash, it hardens in time and becomes very difficult to attack with dilute acids. A very small quantity of magnesia will render alumina insoluble in moderately dilute hydro-chloric acid, the natural aluminate of magnesia, the mineral spinelle is next to the corundum in hardness. Silicate of zinc forms insoluble compounds with most carbonates; and lastly, silicate of potash forms insoluble though unstable compounds with the earthy carbonates, and even with the carbonates of the alkalis. When silicate of potash or soda is used with carbonate of zinc and alumina for the preservation of building stones or cements, a chemical union takes place between them, and the substance of the stone itself, no potash or soda being left, free to effloresce out. The introduction of any materials into stone, which allow the action of a free alkali, or which involve the efflorescence or deliquescence of a free salt, cannot but be destructive to the stone. It is very generally admitted that salt destroys stone, and that buildings near the sea are more liable to decay than others. It is clear, then, that by the use of silicate of potash, carbonate of zinc, and alumina, all the conditions requisite for the preservation of stone are complied with—namely, the combination of loose particles, the rendering the substance non-absorbent, and capable of resisting the action of frost, and the perfect chemical union between the materials used and the stone itself. By using a soluble silicate in the same solution with its reagents, the following advantages are gained: simplicity of application, equal penetration, the intimate union of the silica potash, zinc, and alumina, and the use of them in proper proportions. Silica or flint, and potash when fused, form a perfect glass with one base, which is soluble. If silica be dissolved in caustic potash, a solution is formed, from which, if the water is slowly evaporated, a perfect glass remains, similar to that caused by fusion; silica, potash, zinc, and alumina fused, form glass with more than one base; this is insoluble in acids, and, as is generally known, is indestructible, when the indurating solution just described, formed of these four constituents, loses its water, the result is a glass as insoluble and indestructible as that formed by fusion. Hence, the material introduced into stone for its preservation, is really glass, at least as hard, enduring, and as insoluble as the glass with which windows are glazed.

It has been stated that the method of application is simple. If the solution is used of light specific gravity, the whole operation consists in brushing it into the stone till it has absorbed as much as it will hold; that is, till suction ceases. When dry, the application is to be repeated till the stone will absorb no more. Porous bodies will require more than more dense ones. If a piece of stone, not indurated, and another of the same kind, well saturated and dried, be examined with a powerful lens, the latter will show all the pores and interstices full of glassy matter. Almost immediately after application the surface of the stone becomes very hard, and protects the hardening process within the stone, which is a work requiring more time. Should the surface of the stone become chipped or broken before the internal process is complete, the exposed part hardens in a short time, just as did the surface after the last application of the solution. The two processes here described—namely, the use of insoluble reagents with any soluble

silicate, and the use of a soluble silicate, together with its reagents in one solution, have been patented by Mr. Barff, Dublin Stained-glass Works, Potter's-alley, Dublin. Specimens of the materials treated of in this article, and illustrations of the indurating and combining process, are exhibited by Messrs. Bartlett, Brothers, and Co., manufacturing chemists, Devonshire Wharf, Camden Town, London, in case No. 471, Class 2, International Exhibition, 1862.

ON THE ACTION OF SEA WATER ON LIME MORTAR.

AT an ordinary general meeting of the Institution of Civil Engineers of Ireland, held in the Museum, Trinity College, Dublin, on Wednesday, May 14, M. B. Mullins, Esq., C.E., V.P., in the chair, Mr. B. B. Stoney, B.A. (Member), read the following paper.

Last year several breaches were made by storms in the retaining wall which supports the north side of the causeway between Ringend and the Pigeon House Fort. The heart of the wall facing the Liffey was thus exposed, and proved to be built of calpe rubble stone, with the mortar for the most part washed out from between the stones, so that the wall, which was originally, no doubt, composed of ordinary rubble, was reduced to the condition of a dry wall, and, therefore, quite unfit to resist the impinging action of the waves. The little mortar which still remained was for the greater part reduced to the state of soft putty, which, when dried in the house, became friable, without having the bond of ordinary mortar. Along with this soft putty was found a smaller quantity of good ordinary mortar, forming in some cases a hard core, imbedded in the softer mass, but generally occurring by itself, in consequence of the softer material having been washed away.

These effects were confined to that part of the wall below high water line, the mortar above resembling ordinary mortar.

Amongst other valuable information relating to the Harbour of Dublin, contained in the Historical Sketch of Engineering in Ireland,* by our late President, M. B. Mullins, Esq., we find that this wall was commenced in the year 1748. It is, therefore, about a century old; and a grave consideration arises, namely, how much dependence can be placed in lime mortar in similar positions, that is, when exposed to the action of salt water, if its duration is to be limited to a century, or if it depends on conditions of which we have but little knowledge, and which are consequently beyond our controul. It is a well known fact that the purer limes, when in contact with sea water for a lengthened period, are liable to an alteration of their chemical constituents, the salts of magnesia replacing those of lime. In connection with this subject Mr. G. Burnell states, in his Rudimentary Treatise on Limes, page 55, that "Vicat studied the causes of these failures (artificial puzozolans), and was led by them to some conclusions which may probably explain, not only the disintegration of the limes, but also the destruction of some of the building stones, by sea water. He found in the sea water a very considerable portion of hydrochloride of magnesia, and he proceeded to experiment upon its action upon the hydrates and imperfect carbonates of lime. He found that in a simple solution of the hydrochloride, the particles which were already in a state of perfect carbonization remained in tact; but that the particles which were simply in the state of hydrates passed into that of a soluble hydrochloride, and that the magnesia was introduced into the mass and disseminated throughout the whole tissue. It there quickly passed to the state of a carbonate, with the greater facility when any carbonic acid gas was present. From this Vicat was led to think that the imperfectly carbonated parts of the cements, whose failure led to the investigation, must have taken up the magnesia from the sea water, and passed to hydro-carbonates of lime and magnesia, similar to the dolomites, whose formation may, perhaps, be accounted for in like manner. This would, of course, be accompanied by a mode of crystallization different from that of the ordinary carbonate of lime, leading, doubtlessly, to the disintegration of the whole mass." Mr. Burnell further adds—"The engineer charged with the direction of the works at Rochefort told me that, besides taking up the magnesia, and passing to the state of a carbonate of lime and magnesia, the mortars at Fort Boyard contained crystal of sulphate of lime.

"Now, as the sea-water does contain a considerable portion of the sulphate of magnesia, it is very probable that the lime may have absorbed the sulphuric acid thus presented, and given rise to the new combination, which, in its turn, must have contributed to destroy the cohesion of the whole body, for the tendency of the sulphate of lime in crystallizing is known to be expansive."

Having mentioned the condition of the Pigeon House road wall to Professor Apjohn, he very kindly offered to analyse specimens of the mortar, of which two were accordingly selected.

The first, taken between high and low water, was quite disintegrated and damp, and had the consistence of fresh-made putty.

The second specimen was taken from above high water, and had the usual consistence of good ordinary mortar.

* See vol. X, p. 5, Transactions of Institution of Civil Engineers of Ireland.

The following are the results of the analysis:—

No. 1. Taken between high and low water.

Water,	18-00
Sand and pebbles insoluble in muriatic acid,	88-10
Peroxide of iron and alumina dissolved by the acid,	1-15
Sulphate of lime,	8-83
Carbonate of lime,	8-41
(Lime,	2-50
Magnesia,	10-89
Silicic acid (soluble in dilute muriatic acid),	5-34
Chloride of sodium and trace of chloride of potassium,	1-50
Combined water and loss,	5-78
	100-00

No. 2. Taken above high water.

Water,	8-40
Sand and small pebbles insoluble in muriatic acid,	45-50
Peroxide of iron and alumina,	1-20
Sulphate of lime,	2-68
Carbonate of lime,	27-13
(Lime,	12-02
Magnesia,	78
Silicic acid (soluble in dilute muriatic acid),	4-00
Chloride of sodium,	66
	102-37

On this analysis Dr. Apjohn observes that, "with a view to the hydraulic quality of a lime, what is of most importance is the amount of soluble silicic acid, for the induration of the mortar depends upon the presence of the silicate of lime, which it must of necessity form. The quantity of soluble silicic acid in the two mortars is not far from being the same, but in No. 2 there is associated with the silicic acid 12 per cent. of lime with a little magnesia, whereas in No. 1 the relative proportion of the bases is reversed, and we have 10-89 per cent. of magnesia and but 2-5 of lime. Such being the case, there is no difficulty in understanding the cause of the disintegration which has occurred to No. 1. Sea-water abounds in chloride of magnesium, which is, in fact, the salt next in abundance to the chloride of sodium. This chloride of magnesium has, by double decomposition, gradually converted the silicate of lime into chloride of calcium and silicate of magnesia, the former of which has been washed away because of its exceeding solubility in water, while the silicate of magnesia remains in a loose state in the disintegrated mortar. This theory is confirmed by the fact, that the ratio of the number of the atoms of silicic acid to the sum of the number of the atoms of the two bases is the same in the two mortars. In No. 2, for example, the empirical formula is 5-8 RO by $S_1 O_2$, and in No. 1 it is 5-25 RO by $S_1 O_2$."

With reference to the sulphate of lime, of which we have 8-83 per cent. in No. 2, and only 2-68 per cent. in No. 1, Dr. Apjohn observes—

"The total lime in the two mortars, when first made, must, I find, have been, in

No. 1	25-82
No. 2	29-87

Into this statement the lime of the sulphate of lime is introduced, for there can be no doubt that this salt was produced by the action of the lime of the mortar upon the epsom salt present in sea-water."

We thus see that Professor Apjohn's analysis of the Dublin mortar corroborates in a very satisfactory manner with Vicat's theory of the action of sea-water on lime.

It will, further, be interesting to compare the composition of the Pigeon House road lime with that of the hydraulic limestones of Lyme Regis,* and Aberthorpe, and the natural cement stone found at Shiphey and Harwich, near London,† from which the well-known Roman cement is made.

	Lyme Regis.		
Lime	44-35	79-20	
Carbonic acid	34-85		
Silica and alumina	17-30		
Water	3-50		
	100-00		
		Aberthorpe.	London.
Carbonate of lime		80-00	65-7
Carbonate of Magnesia		2-46	0-5
Carbonate of iron		2-46	6-0
Carbonate of manganese			1-9
Silica			18-0
Alumina		10-70	6-6
Oxide of iron			
Carbon, water, &c.		4-38	1-3
		100-00	100-0

* See vol. xvii., page 411, proceedings of Institution of Civil Engineers.

† See Vicat on mortars and cements, translated by Captain Smith, p. 221.

Owing to the Pigeon House road lime being mixed up with sand to form mortar, we cannot arrive at its original composition with the same accuracy as in the foregoing tables; but if we omit the sand, peroxide of iron, and alumina, the latter two of which were probably introduced with the sand into the mortar along, we may conclude that its composition is nearly as follows:—

Carbonate of lime	98
Silica (soluble in muriatic acid)	7
	100

In the stone from Lyme Regis we have the clay and lime in the proportion of 1 to 4-5. In the Aberthorpe, 1 to 7-5; in the Roman cement stone, 1 to 2-7; and in the Dublin stone, 1 to 18-8. Hence we may conclude that the latter is only a moderately hydraulic lime, and the action of salt water on it is an additional fact in confirmation of the statement that none but eminently hydraulic limes are suited for marine masonry; and if, as there is little reason to doubt, the hydraulic properties of the Lias, and similar limes, be due to the formation of the silicates of lime and alumina in the mortar made of them, then Portland cement, of which the silica and alumina form so much larger a proportion, ought, *a fortiori*, to make a permanent sea mortar.

Mortar made of the rich or slightly hydraulic limes may appear, as in Algiers, Cherbourg, Dublin, and elsewhere, to set hard at first, and present the appearance of strong mortar; but, as far as our present experience goes, their disintegration in sea water seems merely a process of time; in some cases three or four years, in others, as in the present instance, a much longer period elapsed before failure took place.

FOREST OF DEAN STONE, OR DEAN FOREST STONE.*

THE quarries whence this sandstone is derived are situated at Coleford, Lydney, Bream, and Yorkley, in Gloucestershire. The best stone is raised, but differing very much in value and quality, at 1, Birch-hill; 2, Bixlade and Bixhead; 3, Dark-hill; 4, Lydbrook (Barnedge); 5, Knockley Lump; 6, Gosty Knoll; 7, Morgan's Cote; 8, Merry Hole. The stone which is generally grey or blue in colour, lies in three series, each of a different degree of hardness, and each applied to peculiar and distinct purposes; but the quality of the stone differs in the various localities. The upper series is generally from 20 to 30 ft. thick, the second 40 to 70 ft.; a thin vein of clay from 3 to 7 ft. intervenes. The third series is proved to 130 ft., but its total depth is unknown; hence where the three series are found, as in the centre of Birch-hill, the supply of stone seems inexhaustible. The upper series consists of a soft, easily worked stone, of various degrees of hardness, suited for the manufacture of grindstones, sinks, troughs, gravestones, flagging, sills, and wall coping; all of which, in the best quarries, can be got of any size that can be carried through the arches of the Severn and Wye tramways. The second series consists of a grey stone, of harder character than the first; whilst the third species of stone is of a blue colour, still harder, and of a closer, finer grit; both series afford blocks of any removable size. The stone is well adapted for dock and railway purposes; also for building and statuary, being easily worked and sawn and planed by machinery. If placed on its proper bed, it does not scale, and is not affected by the weather; instances of its durability may be seen at Newland, Staunton, and Mitcheldean churches, in which the outlines and carving of the oldest pinnacle, and the letters cut on the oldest gravestone are as sharp and defined as when first worked, some four hundred years ago; but it must be observed that only the stone raised in certain localities and from the best quarries is likely to possess these qualities, generally so unusual in sandstone. The price of blocks at the quarry is 7d. or 8d. per cubic foot if scappled or plicked; and about 7s. per ton if rough; common building stone 1s. per ton; flagging from 2d. to 2½d. per foot superficial.

The stone has lately been used in the construction of Cardiff, Newport, Gloucester, and Swansea docks; South Wales, Taff Vale, and Western Valleys railways; Gloucester and Berkeley canal; Gloucester Over bridge; Folly bridge, interior of St. John's and Exeter colleges, assize courts, and Taylor and Randolph's buildings, all at Oxford; Cardiff castle, and National and Provincial bank; Marlborough, and part of Llandaff, colleges; Eastnor castle and Whitley court, Worcestershire; Langton house, Oxford, in steps 18 ft. long and landings of proportionate size, &c. The towns paved with it are very numerous. *BUILDER JOURNAL*, 1860, xviii, 431, from reports by Mr. Atkinson, engineer, and Mr. Terrett, builder, both of Coleford; also p. 761 of the same volume.

[The Forest of Dean Stone is also about being employed in the pavement of those portions of St. Patrick's Cathedral, Dublin, comprehended in "the Guinness restoration," and in numerous other works in the locality of the city likewise, being highly approved of by some of our most eminent architects and builders. — Ed.]

* From Architectural Publication Society's Dictionary.

THE NEW COLLEGE OF PHYSICIANS.

THE subject of our present illustration is the design by Mr. William G. Murray, of Lower Gardiner-street, architect, selected, as already notified, in competition for the New College of Physicians, and is now being erected in Kildare-street, on the site of the old Club-house, the scene of the memorable and fatal fire some time since. Entering from the portico, the outer hall or vestibule leads by a spacious flight of five steps to the inner hall, in which the main staircase is placed. On the right and left of this hall are the entrances to the council and examination rooms, registrar's apartments, back stairs, reading-room, &c. The College Hall is at the rear of the building, and is entered from the first landing of the main staircase, which here divides into a double flight, returning to the right and left. This noble apartment, 58 feet by 30 feet, and 30 feet high, will form the subject of a future illustration in this journal. It is divided into five bays in length and three in breadth by Corinthian pilasters elevated on a panelled dado, and surmounted by the ordinary frieze and cornice from which springs a quadrant-coved ceiling with semicircular arches over each bay groined into it. This hall is lighted by five lofty windows at the rear, and also three circular dome-lights in the ceiling. The basement storey comprises caretaker's apartments, kitchen, and other offices connected therewith. The dimensions of the library are 84 feet by 18 feet; museum 25 feet by 18 feet; council and reading-rooms each 25 feet by 18 feet. The two latter are situated on either side of vestibule under museum and library, with windows looking into Kildare-street. No particular purpose has yet been decided on for the large space under college hall, but it can be available for a lecture-room. The internal arrangements generally are most compact and suitable. The execution of the works has been entrusted to Messrs. Beardwood and Son; the front elevation to be faced with Scotch (Glasgow) stone, which, for such purposes, is highly approved of, and combines durability with good colour and sharpness of finish. It may here be appropriately mentioned that the honour of designing the respective Colleges of Surgeons and Physicians in Ireland has worthily fallen on father and son, the late Mr. Murray, sen., having designed and superintended to completion the establishment of the former body in Stephen's-green.

IRISH SOCIAL AND INDUSTRIAL STATISTICS.—No. I.

THE statistics of a country, it has been well observed, express in numerical terms the chief facts in its history, and are the best and most reliable guides for its statesmen and legislators. The fact that, according to the census of last year, one-fifth only of the Irish people lived in cities and towns, will best illustrate the paramount importance of the branch of industry—agriculture—by which is maintained the remaining four-fifths, the rural section of our population, and may prove that we should, without hesitation, assign to it the first place in our intended review of Irish Social and Industrial Statistics.

In taking the census for 1841, the first attempt was made to ascertain the quantity of land under cultivation, and the numbers of the live-stock held by our agriculturists. The statistics thus obtained may be considered as constituting the starting-point from which we have since proceeded. In 1847, Lord Clarendon, the then Lord Lieutenant, ordered a special survey, which was carried out by the constabulary, under the direction of Sir Thomas Larcom. The results obtained were found to be so interesting and instructive, that similar surveys were ordered and carried out in 1848, 1849, and 1850, under the same direction. In 1851, the Census Commissioners for that year had the duty entrusted to them, and since 1851 the senior commissioner, W. Donnelly, Esq., has acted as Registrar-General of Irish agriculture, presenting to the public a series of most valuable annual reports, from returns collected by the same efficient force which collected the returns for Sir T. Larcom and for the Census Commissioners.

In 1841, the condition of our agriculturists was thus statistically expressed. They had of horses, 552,569; of cattle, 1,840,024; of sheep, 2,091,197; and of pigs, 1,353,099. These were estimated by the Commissioners at an average value of £8, £6 10s., £1 2s., and £1 5s. respectively, and the value of other agricultural animals having been added, a gross sum of £20,671,068 was found as the hypotheated value of the live stock of Ireland. This estimate was, however, founded on an erroneously low basis of value, as at the Ballinasloe Fair of that year the average price of the best class of cattle was £18, and of the worst £9; of the best sheep, £2 12s., and of the worst, £1 10s. Since 1841, all descriptions of live stock have, in late years especially, advanced in price; yet the estimate formed then has been maintained unaltered in our agricultural statistics. This persistence in apparent error has, however, this advantage, that it facilitates comparison of the progress made from year to year, not so much in the absolute value of the property, as in the gross amount of stock of all kinds held by our farmers and graziers. We have mentioned what that stock was valued at in 1841. When valued again in 1847, it

was found to be £24,820,547; in 1851, £27,737,393; in 1855, £33,679,631; and in 1859, £35,368,259; from this it has declined to £32,723,702 last year. This, although now about 7 per cent. worse than in our best year, we have improved by no less than 64 per cent. from the commencement of the series in 1841; but this decline on the one hand, will be found to be really less, as on the other the advance will be found to be really greater, when we recollect that the cattle, valued all round at only £6 10s., had advanced in price at Ballinasloe to £19 10s. in 1859, and to £21 in 1861 for the first class, which in 1841 sold at £18.

In 1847, the quantities of land under the different kinds of crops was for the first time ascertained. The cereals were found to occupy 3,313,579 acres; the green crops and flax, 786,050; and hay or meadow, 1,138,946, being an aggregate acreage of 5,238,576. In 1851, this aggregate had been increased to 5,858,951 acres, but in 1855 it had declined to 5,688,836 acres, from which a steady progress, year after year, was made up to 1860, when the highest point in our statistics was attained, the land under cultivation that year being 5,970,139 acres. In 1861, a slight decline was exhibited, the quantities for that year being 5,888,766. However, if 1861 be thus inferior to 1860, it may reassure us to find it superior to every other year, this one alone excepted since 1847, and exhibiting, as compared with that latter year, an increase of no less than 650,190 acres of cultivated land in Ireland.

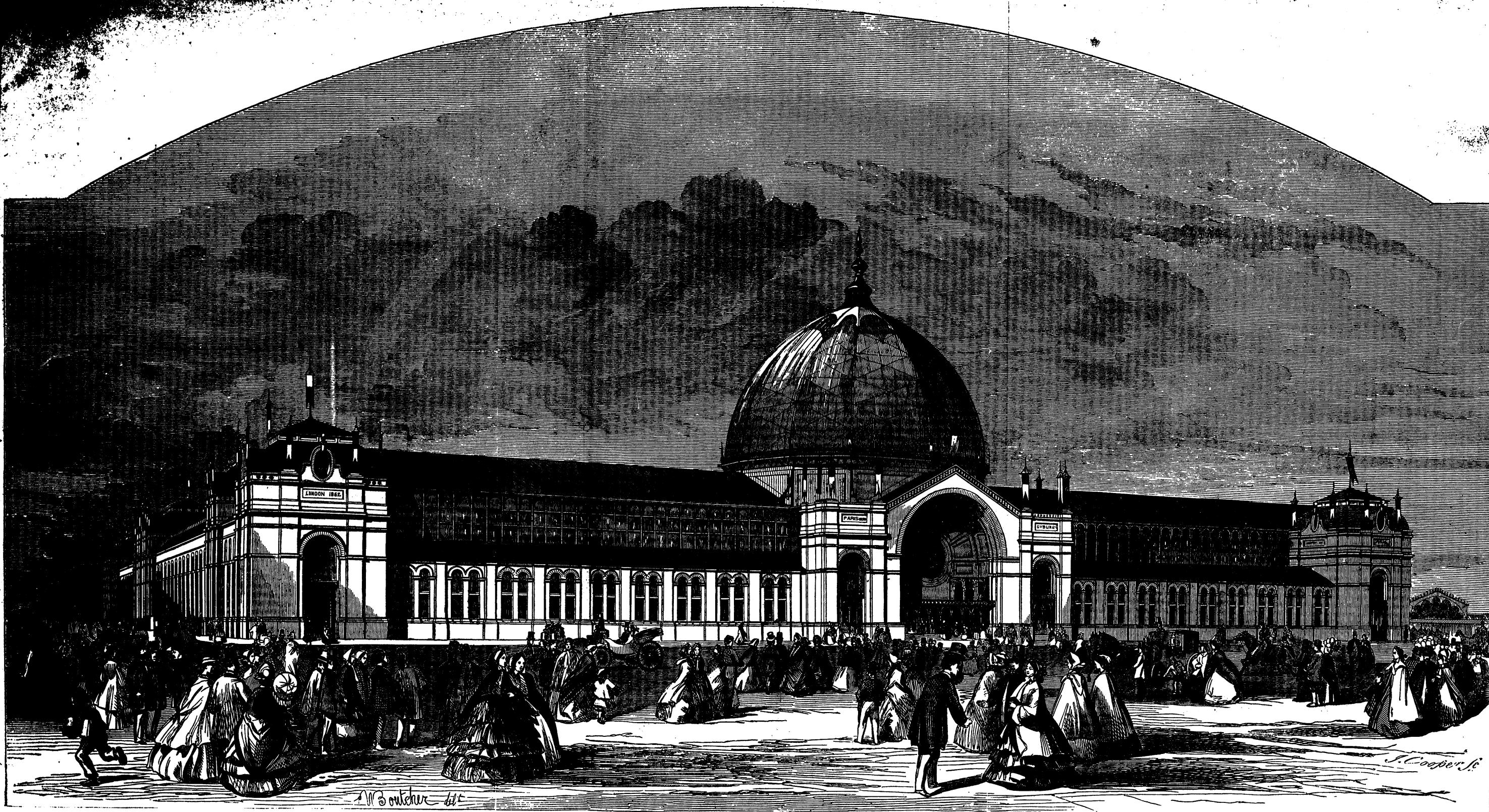
So far, then, as the value of our live stock is considered, and the quantity of land under cultivation, it will be conceded we have largely progressed during the last twenty years. Let us next inquire whether that progress has been in a direction to lessen or to increase the demand for labour. Our stock of cattle has grown from 1,840,024 in 1841, to 2,591,415 in 1847, and to 3,592,804 in 1859, with a corresponding growth in our stock of sheep and of horses, and other beasts of burden. This great increase in the number of agricultural animals was necessarily accompanied by a proportionate increase in the quantity of land required for their sustenance, and accordingly we find the meadow acreage of 1861 to be 407,603 in excess of that of 1847. But we have already stated the total gain between those periods as 650,190 acres—the difference, or 242,587, was the increased acreage of tillage lands under cereals, green crops, and flax. In 1861, we had 4,342,217 acres of tillage; in 1847, but 4,099,630. This fact serves to refute a very common error, that increase in live stock involves a decrease in tilled lands. Cereals must be grown for an increased stock of horses, and green crops become indispensable for the sustenance of the improved breed of cattle. Human labour, therefore, instead of being curtailed in demand, has become more requisite for tilling the increased acreage of tillage lands in Ireland, as well as for tending the more extensive flocks and herds we now possess. The effect of the changes we have briefly reviewed in raising the rate of wages and improving the condition of our agricultural population, together with the progress of our export and import trade in cattle and corn, and the curious influence exercised on production by mutation in prices, will next occupy our attention.

MEDIÆVAL ART AT THE EXHIBITION.

IN our sketch of the works of the principal mediæval art contributors to the Exhibition, and taken on the occasion of our visit thereto at the opening ceremonial, we briefly alluded to a handsome gas brass standard, manufactured at the eminent establishment of Messrs. Johnston Brothers, 190, High Holborn, London; but as it is of uncommon merit, both in design and manufacture, we now add a few further particulars. This standard is comprehended in Class 31, close by the south-east transept, and is in the mediæval style, after a design by Mr. George Truefitt, architect. It is twelve feet in height, and comprises a shaft in two stages, the upper of spiral form, with voluted cap, set with imitation rubies, and having divisional boss similarly ornamented; the lower octagonal, and set with crystals, resting on a pyramidal-shaped base, perforated and decorated also with imitation-crystals and rubies, which give an indescribable richness and brightness to the whole. From the summit of the shaft branches a capping octagonal on plan, and showing quarter circle in profile on elevation, supplied with 64 jets, which, when lighted, will doubtless contribute much additional brilliancy to the general effect. The araises throughout are remarkably sharp, and the ornamental portions and settings of the muck gems beautifully perfect. We believe this work is available for purchase, not having been manufactured for any special order, and a more excellent work of its character could hardly be obtained, in or out of London.

Professor Sterndale Bennett has presented to M. Sainton the manuscript score of his Ode written for the opening of the Exhibition, elegantly bound, as an expression of his sense of the great care and ability with which M. Sainton conducted the performance of his work on the emergency caused by the refusal of Signor Costa.

MAY 15TH, 1862.



THE INTERNATIONAL EXHIBITION BUILDING.

PERSPECTIVE SHOWING ELEVATIONS TOWARDS "EXHIBITION" AND "CROMWELL" ROADS.—CAPTAIN FOWKE, R.E., ARCHITECT.

THE LIBRARY
OF THE
UNIVERSITY OF MICHIGAN

THE NEW COLLEGE OF PHYSICIANS, KILDARE-STREET.—MR. WILLIAM G. MURRAY, ARCHITECT.



THE LIBRARY
OF THE
UNIVERSITY OF MICHIGAN

DRAINAGE OF LAND IN IRELAND.

FROM the evidence adduced before the select committee of the House of Commons, appointed to enquire into this question, we collect the following:—

Sir Richard Griffith, chairman of the Board of Public Works, examined—The cost of lowering a lake or a river is one of the most difficult problems in engineering; does not think any engineer could make an estimate without a guess—in fact, the item of “contingencies” might stop the whole thing; can tell from the Ordnance Survey the effect of making any drainage works in Ireland, and would not consent to any which he did not consider practicable; thinks it would be advantageous to provide that notice should be given to the owners of mills and factories, in cases where the out-fall was made below their buildings; county surveyors are in many cases instructed to act on behalf of the owners of property, and in those cases the works are well maintained; in his experience he had never known any case where an extensive tract of land was required for drainage purposes, except in the neighbourhood of outfalls; in case of very large drainage works, such as those of Loch Erne, a special act of parliament would become necessary; considers that all drainage works that might be required could be conducted under the Board of Works, with the exception of Upper Loch Erne, the Suck, and the Barrow; for the latter he thinks nearly £200,000 would be required, and that such works could not be undertaken without a special act of parliament; is of opinion that the expense of large works similar to those of Loch Erne, the Suck, and the Barrow, should be divided into three—one part to be borne by the government, one by the country, and one by the proprietors to be benefited; the drainage of the Bog of Allen would be attended with very beneficial results in a sanitary and an agricultural point of view; from the black colour of the soil the evaporation is very great, and, as a general rule, the atmosphere of the surrounding country is quite clouded.

Mr. Hill, C.E. (County Surveyor, King's County) considers that facilities for carrying on drainage works in Ireland were most necessary; is at present draining a district in which the out-fall was below the lands benefited, but the proprietors are friendly, and make no objection to the drains passing through their lands; is of opinion, however, that compulsory powers are absolutely necessary to enable drains to be carried through their lands; in cases where bridges are required to be altered for drainage purposes, thinks the county should pay for them; there are thousands of acres of land which would be rendered productive by being drained, and a great deal of employment would be given to the people; in many districts the salubrity of the neighbourhood would also be greatly increased by efficient drainage; thinks any proprietors of land could object to have the out-fall enlarged, so as to allow the waters to come down; in many instances mills would be injuriously affected by what is called the “storm water,” and in these cases steps should be taken to carry off the waste water.

Mr. Barry, C.E., has been employed largely in railway and drainage works in Ireland; made a plan for the improvement of the Suck; read the bill as now proposed, and considers it was extremely likely to work well; sees no objection to the mode in which the bill proposed to carry out its object; is of opinion that in cases where it might become necessary to rebuild county bridges, the cost should fall upon the county, and not upon the Drainage Board; an insufficient bridge is a public nuisance, and on that account he considers that the county might be at the expense of efficient bridges.

Lord Dunkellin, one of the committee, thinks it might be a hardship upon the cesspayers of the county that a bridge, which might have stood very well for many years, but which had become unequal to the increased demands made upon it by drainage works, should be pulled down, and a new one be built at the expense of the county.

Mr. Barry replied that if the foundation of the bridge had been properly built at first, they would be quite sufficient to bear the additional pressure put upon them in consequence of the drainage.

Not the least important of the many extensive saw mills that have of late years been established in this city, are the concerns of Mr. Michael Meade, in Great Brunswick-street, presenting a frontage to that thoroughfare of 400 feet, and having a depth to the Kingstown Railway of 100 feet. The chimney in connexion with the engine-house, recently erected at great expense, and fitted with a powerful machine, by Messrs. Rowan and Sons, of Belfast, is octagonal in plan, being about 15 feet diameter at base, and tapering to 11-4 at the summit, which is 150 feet from the ground—the tallest structure of its class in Dublin. The walls are 8-6 in thickness, and the workmanship of the most unexceptionable character. In the various departments of the workshops, machines for log-cutting, mortising, tenoning, sawing, boring, grooving, &c., are driven generally by straps from the main shaft, but there are others also for hand pur-

poses. The majority of the former have been supplied by the eminent firm Forrest and Barr, of Glasgow, and we noticed a patent Derrock Crane from same establishment; but there is also a most efficient tenoning machine, by Mr. Furness, of Liverpool; and others by Woorsam and Co., of London; Broadbent, of Staleybridge; Danford and Lane, of Masboro, &c. Amongst the orders for machine-made carpentry at present in course of execution here, are the benches and furniture for the Oriental Baths, London; for the new R. C. Church, Rathgar; ditto for City-quay, Mr. Meade being the contractor for the latter, as also for the Countess of Glengall's mansion, Cahir (Messrs. Lanyon and Lynn, architects); eight houses and villa at Bray for Mr. Dargan (same architects); a Gothic screen, of elaborate design, for Clondalkin R. C. Church (Mr. Caldbeck archt.); houses at Kingstown for Mr. P. Madden, conservatory for Lord Cloncurry, &c., &c. A spacious residence and offices for the proprietor are provided in a tastefully-designed and substantial building, with large gateway forming the principal entrance, and which, together with the extensive workshops and all buildings on the premises, have been erected by Mr. Meade, the concerns generally forming a very conspicuous feature in the city. We believe we but express correctly the unanimous opinion of the Regular Operative bodies of this city when we refer to the character Mr. Meade deservedly enjoys of being a good employer.

THE PATENT SILICIOUS STONE COMPANY.—We have during the last week availed ourselves of an opportunity of visiting Messrs. F. Ransome and Co.'s Patent Silicious Stone Works, for the purpose of inspecting the process and the results of the new method of hardening stone, discovered by Mr. Fredrick Ransome, and substituted for the kiln burning. The earlier stages of the stone manufacture are the same as before, a solution composed of flint and caustic alkali is formed by heat, and mixed with sand and a small portion of clay, and this compound is pressed into moulds in the forms required. So far the process is the same that has been practised by the company for many years. Hitherto the next stage in the process has been to place the moulded articles in a kiln, just as is done with any kind of pottery. By the new process, however, the kiln becomes unnecessary. The moulded forms are saturated with a solution of chloride of calcium, or muriate of lime, when a double decomposition takes place. The calcium combines with a silica, forming a silicate of lime, which is the cementing material in all our cements, mortars, and concretes. The chlorine combines with the soda, forming common salt, which is washed off, and the manufactured article is as hard as a piece of York stone, and only requires drying. The above process may appear a complicated one to the unchemical reader, but to the visitor at the works it is nothing more than dipping a plastic door-jamb or mantel-piece, which is of the consistence of clay, into a liquid for about two minutes, and it comes out as hard as the pavement of the streets. The importance of the new process is very great. Already the immense kilns at which fabulous quantities of coals were burnt are being moved off, for a simple vessel to contain the fluid in which to dip the plastic articles is all that is required, and a great expense is saved. But this is but a small part of the advantage. The great gain is in the facility with which articles of immense size can be finished—articles, the finishing of which by kiln burning was attended by great cost and great risk—indeed, huge ornamental blocks can now be made which it was all but impossible to finish by the old process. By the new process huge forms, such as may be used in the construction of docks and harbours, can be made with as much ease as an ornamental vase, and the finest and most delicate work is finished perhaps even with greater exactness than before. This discovery must be regarded as a very valuable addition to the wonderful process of manufacturing stone out of common sand, which has already made the name of this firm famous in the country.—*Ipswich Journal*, May 17, 1862.

THE GALWAY STEAMSHIP HIBERNIA.—This vessel, which was built by Palmer, of Newcastle, and has been rebuilt by Messrs. Laird, of Birkenhead, made a trial trip on Wednesday last, under the command of Captain Leitch. It is not likely that the people of Galway will recognise her when they see her. She is now a noble looking ship, and is capable of performing efficiently any service in which the Atlantic Steam Navigation Company may employ her. No expense has been spared in making her seaworthy and comfortable for passengers. A hurricane deck has been built, sheltering the vessel from the paddle-boxes forward. The steering wheel is placed on the bridge. During the trial, on Wednesday, she drew 16 feet 4 inches forward and 18 feet 7 inches aft. She ran the measured distance (4½ miles) at the rate of 14½ knots. She answered her helm quickly, turning at full speed in 6½ minutes.—*Liverpool Albion*.

Mr. Runkin's four essays on political economy, entitled “Unto this Last,” published in the *Cornhill Magazine* in 1860, are about to be republished separately by Messrs. Smith, Elder, and Co.—*Critic*.

ROYAL IRISH ACADEMY.

A GENERAL meeting took place on the 26th ult.—Dean Graves occupying the chair.

The following papers were read:—

On the system of the lateral line in fish, by Dr. R. McDonnell.

On the difference between the annual rain fall between Dublin and Enniskillen, by the Rev. Professor Haughton.

On the rain fall and wind at Simon's Bay, by ditto; by Doctor Churchill, author.

On the partial combustion of fluid iron, described by Mandelslo in 1639; and of solid iron, now publicly practised in Dublin by means of a cold blast of common air; by Mr. Edward Clibborn. The object of this latter paper was to call attention to similitude of the process for improving the quality of iron described by Mandelslo as existing in Japan in 1639, and by Mr. Bessimus in 1856. In both, a partial combustion of the iron operated on takes place, and much heat and light are produced; but from certain arrangements belonging to both processes the light is not available for scientific purposes. Mr. Clibborn called attention also to another process, somewhat of the same kind, in use in Dublin, in which there is a partial combustion of the iron, also produced by a blast of cold air directed on heated nailrod, and in the manufacture of horse-shoe nails. In this process the light produced by the incandescent iron is readily managed, and may be applied to optical research, and used for the purpose of examining solar and meteoric light, in both of which opticians have lately detected evidence of the combustion of iron and other metallic bodies.

ARCHITECTURAL PUBLICATION SOCIETY.

THE annual meeting, on Monday last, was numerously attended, and the report, from which we give an extract, was considered satisfactory:—

"The committee have, as yet, only been able to prepare one part, completing the letter F; but the second part is in a forward state, and will be issued at the earliest possible period. The preparation of the manuscript is undertaken by gentlemen much engaged in professional duties; and the committee, therefore, refrain from more than urging on them an early attention to the claims of the society.

"The part for 1861 will contain the following plates:—Farm-Buildings; Fountain; Groined Roof (2); Half-Timber House; Lych Gate; Metal Work (2); Mosque; Pavements, coloured (2); Pavements, in outline (2); Porch. The subjects comprised in these fourteen plates have been selected from the portfolios of Messrs; Bowman, R. S. Burn, F. P. Cockerell, J. T. Christopher, G. Goldie, O. Hansard, R. J. Johnson, T. S. Pope, J. P. Seddon, G. Truefitt, and J. W. Walton, who have kindly placed their valuable collection at the disposal of the committee. To all these gentlemen the thanks of the Society are due, but more especially to Mr. Henry Bowman, of Manchester, for the liberal manner in which he has permitted a selection to be made from his important and unrivalled series of measured drawings of the marble pavement of St. Mark's, at Venice; from this valuable source the committee have secured materials for the two coloured plates, and have themselves to express their obligations to Mr. Bowman for his kindness in materially assisting them, not only in the arrangement and reduction of the examples for, but also in superintending the execution of, the plates, so as to secure the proper colours in printing. These subjects, from their well-known value, have appeared to the committee sufficiently important to warrant them in expending a larger amount than usual, by adding to the twelve plates ordinarily issued, uncoloured impressions of these designs, showing at a glance the key to their formation; and thus being likely to prove serviceable to the designers of similar works.

"After a careful review of the position of their work, and of other similar undertakings, the committee are fully convinced that, notwithstanding the delays, they are comparatively but little in arrear; and whilst they fully sympathise with their fellow subscribers, in the anxiety that all must feel to reach the termination of their labour, they entertain a deep conviction that it is their duty, as well as the true interest of the Society, to study far more anxiously how to sustain the excellence of the work, than how to hasten it towards an unsatisfactory conclusion.

OPENING OF THE INTERNATIONAL HOTEL, BRAY.

THIS mammoth building, the largest of its class in Ireland, was formally opened on Saturday, and in celebration of the event the enterprising proprietors, Messrs. Brennan and Reynolds, gave a sumptuous banquet, at which numbers of the local gentry, and many from Dublin also were present. Sir George Hodson, Bart., presided, and Mr. Dargan occupied the Vice-chair. The latter, in responding to the toast of which he was the subject, said, with reference to Bray, that "it was, perhaps, unsurpassed for scenic beauty in the whole of the civilized world. It has sea and mountain scenery beautifully blended. Kingstown, Ballybrack, and other places along

the line had their attractions, no doubt, and it was, perhaps, to be regretted that one flourishing township should be jealous of the success and prosperity of another. Prosperity in one place would, however, only stimulate enterprise, and tend to the mutual prosperity of all. Kingstown had the advantage of its splendid harbour, and being nearer to the city; but Bray could very well afford to rest upon its own merits. The hand of nature had done much for Bray, and it remained for them still further to beautify and improve it."

The following is a brief description of the building in question, which is situated close by the Railway Station. It is four storeys in height, including basement, the principal elevation facing Quinsborough road, the entrance being under a portico with Ionic columns, approached by a spacious flight of stone steps, and surmounted by the Royal Arms. The various apartments on each storey, in all some 210 in number, of which 130 are bed-chambers, are suitably arranged for the carrying out of the system of "classes" intended to be adopted, as is the general principle observed in transatlantic hotels, the various coffee, dining, drawing, and other principal rooms being fitted up in a costly and tasteful manner. In the basement storey the culinary offices and cellarage arrangements are most comprehensive, the kitchens which are fitted with patent ranges, hot-hearths, &c., by Messrs. Hodges, and William Turner, respectively, being specially remarkable for their completeness. The usual adjuncts of baths, smoking, and billiard rooms are also here in suitable positions. The general design of the interior of this vast establishment is creditable to the architect, Mr. Edward O'Kelly, who has been ably assisted by the tradesmen in the several departments. The carpentry work has been supplied from the North Wall Saw Mills. Some splendid views of the surrounding scenery are obtained from the windows of each storey. We hope that the enterprise of the proprietors will meet with the encouragement it deserves.

SKILLED DRAUGHTSMEN.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—In what estimation that class of individuals called "draughtsmen"—and to which unfortunately I belong—are held by the principals of public establishments, may readily be inferred from the munificent salary offered by the Ballast Board for a skilled draughtsman, but which—judging from the fact that the advertisement has been for a long time going the rounds of the papers without the appointment being filled (as I understand)—seems to have met with no response from a desirable quarter. What a tempting allurement is *thirty shillings per week* for unlearned youths—scions of Angelo and Wren, who have just shaken off the fetters of their *five years* apprenticeship to an honourable profession; and how much less so it is for those who have been pursuing their vocation for a longer period, and are really competent to perform the duties required? The scale of salary adopted by some of our parsimonious private practitioners is generally miserable enough, but for a public board to follow a cheese-paring example is unpardonable. The fortunate competitor for this appointment is expected to prepare practical working drawings for lighthouses, beacons, keepers' dwellings, graving docks, and wharfs, &c., &c., make perfect specifications and estimates therefor; and for his *skill* he is to be paid an operative's wages, viz., *thirty shillings* per week. Oh, shades of Smeaton, Telford, Rennie, Brunel, and Stephenson, defend us!

"MINUTE POINTS."

THE DRAMA IN PARIS.—At the recent annual meeting of the Society of Dramatic Authors and Composers, the report, read by the treasurer, furnished the following details:—The total receipts of the different theatres, exclusively of the Italian one, and those previously considered as being in the Banlieu, amounted to 11,191,041f. from the 1st April, 1861, to the 31st of March, 1862. The authors' dues were 1,277,178f. The Grand Opera had the largest receipts, the sum being 1,215,000f., of which the authors only took 87,026f., the writer of the *Huguenots* having the largest part of that sum. Next to the Opera, only two houses exceeded the amount of 1,000,000f., viz., the Cirque, which, with the *Prize de Pekin* and *Bothomago*, received 1,185,654f., of which 148,736f. went to the authors; and the Porte St. Martin, which received 1,057,548f., and distributed 137,521f. in dues. The receipts of the Theatre François amounted to 929,287f., giving the authors 112,355f. At the Opera Comique the sum received was 860,367f., and the authors' dues, 128,314f. The Gymnase stands in the list of receipts for 629,000f., paying the authors nearly 76,000f. The Vaudeville, the Varietés, and the Palais Royal, are each down for about 20,000f. less than the Gymnase. The Gaité 75,000f. in authors' dues, and the Ambigu 68,000f., the receipts of each being about 700,000f.

An immense factory is now building on an extensive site of land situated on the river bank at East Greenwich, for the company recently formed to build boats by machinery, on the plan of an American inventor.

ON THE CONSTRUCTION OF THE MALAHIDE VIADUCT.

(Concluded from page 120.)

THE provision for expansion in a bridge of this length, with slight piers based on an uncertain foundation, was matter of anxious consideration, the more so as the viaduct is on a gradient of 1 in 832, and it was feared that there might be a tendency in the whole bridge to work down to the lower end. To guard against this Mr. Harty contrived a most ingenious and simple expansion apparatus. On every other pier, as already stated, the beams rested directly on metal wall plates, but on the intermediate piers their free ends were capable of motion on 2in. metal rollers arranged in wrought iron roller frames. Furthermore, the ends of the bottom flanges were cut away on opposite sides so as to pass each other, and were connected by pairs of short links rocking on a centre pin secured in the wall plate. By this arrangement the beams, though free to move, are yet secured to the piers, and the relative position of the two cannot alter. The author is not aware of a similar contrivance ever having been adopted before.

The maximum expansion of the Britannia Bridge, 1,510ft. long, is 6½in., so that the Malahide viaduct may expand 2½in., or 0.4in. on each expansion pier; considering, however, that the beams are very near the sea, and protected from extreme heat and cold by the timber sheeting, the actual amount of motion is not likely to exceed the half of that stated.

An inquiry of great practical interest, though perhaps not directly connected with the subject of this paper, is the relation between the theoretical and actual weight of beams, the relative quantity of material necessary to the flanges and webs respectively, and the amount of economy to be effected by reducing the flanges and webs in proportion to the strains. With a view to illustrating this more clearly Tables III. and IV. have been constructed:—

TABLE III.

	Actual weight.		Actual weight, deducting for corrosion.		Theoretical weight of beam to break under four times working load.	
	lb.					
Top flange ..	3,305	32.82	3,003	32.17	1,745	41.40
Compression lattices ..	1,478	23.06	1,145	21.63	767	24.48
Tension lattices ..	1,200		874		265	
Bottom flange ..	3,305	32.82	3,003	32.17	1,438	34.11
Packings, joint plates, rivet heads ..	1,309	11.29	1,303	14.02		
	11,592	100.00	9,334	100.00	4,215	100.00

TABLE IV.

	Actual beam, less allowance for corrosion.			Theoretical beam.		
	Uniform section.	Section proportioned to strain.	Per cent.	Uniform section.	Section proportioned to strain.	Per cent.
Top flange ..	3,358	3,003	77.8	2,619	1,715	66.63
Compression lattice ..	1,456	1,145	78.67	3,387	767	22.37
Tension lattice ..	1,198	874	73.07	810	265	32.37
Bottom flange ..	3,358	3,003	77.8	21,35	1,438	67.35
	10,370	8,025	77.8	7,942	4,215	53.

In Table No. III. it appears that in the beam as it now stands the weight of the flanges, which are equal, is two-thirds the weight of the whole beam, the remaining one-third being taken up by the web, packings, rivet heads, and joint plates. The same proportion holds good when the fin. of surface allowed for corrosion has been deducted, but the packings, &c., which at present are 11½ per cent. of weight of the whole beam, become 14 per cent., as might be expected, since their weight is very slightly affected by the deduction. In the last two columns of the table is the weight of a beam supposed to be cut out of solid iron, with every portion accurately proportioned to the strain, which, in the top flange is taken at 4 tons to the inch, in the bottom and tension lattices at 5 tons, and in the compression bars to one-fourth the breaking load by the

formula $w = 215 \frac{f^2 b}{l}$. The flanges in this case absorb three-

fourths of the weight, the lattice bars only one-fourth. The quantity of iron sacrificed to compensate for corrosion is a little over a ton per beam, representing about £768 in the entire bridge, whereas the unavoidable waste of iron in overlaps, packings, joint plates, rivet heads, exclusive of the ton above noticed, is nearly 46 cwt. more than 46 per cent.

Table No. IV. gives a comparative view of the amount of saving effected by reducing the flanges towards the ends and the webs towards the centre. Thus, in the beam as it now stands there is a saving of 22 per cent. in the flanges and 24 per cent. in the web, being a saving of nearly 23 per cent. in the whole beam, whereas in the theoretical beam there appears a saving of 33½ per cent. in the top flange, nearly 33 per cent. in the bottom, 68 per cent. in the web, and 47 per cent. in the whole beam. As regards the flanges in this case the saving is what may be inferred without actual calculation, because it is well known that the area of a parabola is two thirds that of the circumscribed rectangle; now the flange of a uniformly loaded beam ought to vary in section as the ordinates of a parabola, consequently its weight should be two-thirds that of a flange of uniform section throughout. It may then be assumed without much error that the flanges form generally two-thirds the weight of a beam, the diagonals and packings, &c., one-third; that, in practice, it is possible generally to save one-fourth the material by carefully proportioning the several parts. In the large tubes of the Britannia bridge the weight of the top and bottom flanges is nearly equal, while the sides are a little more than one-third the whole weight—viz., 37 per cent.

From these considerations it is very easy to arrive at a quick method of estimating the weight of any given girder.

The sectional area at the centre of one flange being obtained, the weight per foot is known, ¼ of this at least may be saved by proper arrangement of the materials, and the weight of the whole beam will be three times this result.

The Board of Trade limits the strain as wrought iron to 4 tons to the square inch in compression and 5 tons in tension; this would make the bottom flanges of beams lighter than the top, were it not for the weakening effect of rivet holes; it is, therefore, generally correct to make the bottom flange the same gross area as the top. By dividing the strain in tons in the centre of a flange by 4, we obtain the sectional area, multiplying this by 3½ lb., the weight of a 1in. square bar a foot long, we obtain the weight per foot of the flange; multiplying this by 3, we obtain the weight per foot of the beam, supposing its section to be uniform; and finally multiplying by ¾, we get the average weight of a beam the flanges and lattices of which are proportioned in some degree to the varying strains. If we assume the depths of a beam to be 1ft.; 12.6ft., a very good proportion this formula becomes.

$$\text{Weight per foot in lb.} = \frac{W \times 12.8 \times 3\frac{1}{2} \times 3 \times 3}{8 \times 1 \times 4 \times 4} = 3W.$$

Or, in other words, multiply the distributed load in tons a beam is required to carry by 3, and the result is the weight in lb. per foot of the beam. This rule will be found very useful in making rough estimates of bridges.

The following is the weight of bridge:—

					Tons. cwt. qr.
72 beams ..	100 per cent.	..	..	..	307 18 3
Crossbracing ..	10.7 "	..	..	..	63 1 3
Rollers and frames ..	12 "	..	..	..	3 14 2
Wall plates and joggles ..	4.6 "	..	..	..	14 8 3
					359 3 3

The contract price for all the ironwork, including fixing beams in their places, and fitting in cross bracing, but exclusive of carriage or placing the beams on the piers, was £6,000. The wages paid for men employed in erecting and fitting bracing and expansion gear amounted to £144, a little over 8s. per ton. After the beams had been fixed in their places they were prepared for the reception of 4in. sheeting by levelling over the plates and rivets with longitudinal timber packings made to fit close on the top flanges, recesses being cut for the rivet heads, joint plates, &c.; the sheeting was then laid across in lengths generally equal to half the breadth of the bridge, with every seventh or eight plank running across. Where the short pieces met in the middle of the 6ft. space, their ends were secured by bars of 3½ × ½ flat iron placed under and over the joint, and connected by a few bolts. The sheeting was secured to the beams by means of hook-headed bolts catching the flanges. Memel timber was first obtained by contract at 1s. 10½d. per cubic foot, delivered at the terminus in plank 4in thick, not less than 11in. wide; but the quality and rate of delivery not proving satisfactory, Dantzic timber was obtained from an eminent firm on the North Wall at 2s. 6d. per cubic foot, the original contractor being at the extra expense incurred thereby. The longitudinal sleepers were secured by wood screws to the 4in. sheeting, and the rails laid in the usual manner. A simple post and handrail on either side of the bridge, and a thin layer of clean gravel to protect the timber from fire, completed the bridge.

Mr. Harty's original estimate of the cost of reconstruction was £12,181 9s., from which he deducted £300, the estimated value of old bridge, leaving £11,881 9s., as the sum to be expended. The actual outlay was £11,741 13s. 3d., or £440 less than the

estimate. The cost of the bridge is, therefore, a little over £20 10s. per foot; this sum may thus be divided:—

Timber in sheeting and handrail, 6.178 cubic ft., at 3s. per ft.	£927
Contract price for iron superstructure	6,000
Cost of masonry in piers, removal of old bridge, and all other works not specified	4,600
Piece work, cost of preparing foundations and crane roads for 11 piers	215

£11,742

There are about 66 yards cube in each pier, making probably about 750 cube yards rock, ashlar work, and cut stone copings. In comparing the cost of this viaduct with other bridges, it will be necessary to bear in mind the large allowance made for corrosion, and the circumstance that the two outer ranges of girders are strong enough in themselves to carry a third line of rails.

The author has thought this viaduct worthy the attention of the Institution, as affording an example of a singularly well-designed and executed piece of work. He would especially draw the attention of the student members to the great forethought, method, and minute attention to details displayed by the engineer, and he trusts that this paper will prove a valuable record to those who may hereafter wish to guide their practice by the light of existing engineering works.

In conclusion, it is necessary to explain that, at the time this paper was begun, Mr. Hartly was not a member of this Institution; that beyond being contractor for the ironwork the author had nothing whatever to say to the design or execution of the works: he has merely undertaken to record what struck him as being a valuable example of railway engineering.

TOWNS' SURVEY.—IV.

WICKLOW.

NINE years ago, when we last visited this town on a special mission connected with some projected works of improvement, we found it in pretty much the same state as at present; a fact which certainly does not reflect credit on the enterprise of the town's people, who, doubtless, intend well, but who are far behind in the march of progress. At that time it was in contemplation to lay out a portion of the town to advantage in building lots, and to induce the erection of a suitable class of structures; the commissioners advertised for designs, and awarded a premium to one; yet the projected works have ever since remained in abeyance. The railway has for some time been opened, and terminal buildings erected on the Murrough, with a commodious hotel, formerly a schoolhouse, adjoining; so, considering that the town is now within an hour and half's journey of the metropolis, that it is a seaport, and contiguous to one of the richest mineral districts in the kingdom, and to the far-famed beauties of the county in which it is situated, that it has an unlimited supply of building materials, together with other advantages, its present superlatively slow condition is inexplicable. A little, however, has been done and more is contemplated, the particulars of which we record. The tramway to connect the harbour with the railway will be laid down as soon as the extension of the latter to the mining districts is complete. All the capital, we are informed, has been subscribed. Some two or three houses of a fair class have been built at the upper end of the town by Dr. Andrew Nolan and others at Bayview Terrace and Paradise Plot—the latter being portion of improvements contemplated by a plan obtained by the Commissioners from Mr. J. J. Lyons, of 17, Lower Gardiner-street, Dublin, architect—and some fine building sites are available. The sanitary state of the town is by no means satisfactory, that part called "Irishtown" being especially in a most filthy and degenerate state, which must more or less contaminate the whole neighbourhood. We hear of proposed new dwelling-houses on the Murrough, and sincerely hope that the project may not be consigned to oblivion like its predecessor. We would earnestly commend the Grand Jury to look to the condition of the Court-house, which is disgraceful, and the Town Commissioners either to modify the existing Town-hall—now used as a corn store—or to try and build a new one more suitable for public purposes. The old bridge over the Vartry at this town—formerly so narrow that only one vehicle could pass over it—is being widened to 20 feet; but the harbour improvement works, so long talked of, and so often forming subject for discussion, have not yet been commenced, owing, we believe, to the estimated cost being too high. With our visit to the works of the Hibernian Brick and Tile Company, about half a mile from the railway station, we were much pleased, and can willingly bear personal testimony to the excellent quality of their manufactures.

When this company was establishing twelve months ago, we confessed we were not sanguine about its success, not being aware, in fact, that there was any considerable quantity of clay at a reasonable distance from Dublin suitable for making red bricks; but we rejoice to see that we have been wholly mistaken. The company have progressed rapidly and steadily in their work, and are now producing

machine-made bricks, draining pipes and tiles, fully equal, if not superior, to anything imported from England. It is, moreover, gratifying to learn that their efforts have received from our leading architects and builders the most marked encouragement.

We may state briefly the history of this company:—Eighteen months ago Mr. J. A. Walker, the managing partner, contemplated the establishment of a building society, on the English principle, in this city; he saw how difficult it was to get houses suitable to a small family at a moderate rent, say from £20 to £30 per annum, and of a similar character to those in the suburbs of every town in England. This gentleman, upon making inquiry relative to the cost of building materials, found, to his surprise, that all the re-fronting bricks had to be brought from England, naturally increasing their price materially. We therefore immediately turned his attention to making the bricks at home, and with this view carefully searched the whole country, for nearly thirty miles round this city, until he succeeded in discovering the bed where the works are now carrying on. He obtained the co-operation of one of the leading cotton manufacturing firms in England, Messrs. Daniel Collinge and Son, of Manchester and Oldham, who, with great promptness and liberality, came forward and entered into the undertaking with energy. They tested the soil, and, being satisfied it was right, at once leased it from Lord Fitzwilliam, and then engaged, in England, competent workmen, whom they brought over and set them to work. A large capital has been already expended, yet, from the very encouraging support received, they may look forward to the time when their undertaking will prove eminently profitable to themselves, as it has already proved eminently useful to the district in which it is located.

We hope to record more items of improvement in Wicklow hereafter, and the sooner the better.

FOXROCK.

Who would have thought some five years ago that the district known as Foxrock, Kerry-mount, and Galloping Green, and situated between Carrickmines and Stillorgan, on the Dublin and Wicklow Railway, would so soon be dignified with the title of a "town," and might properly form a subject for notice in this series. Yet so it is! Upwards of 1,500 acres have been laid out to the best advantage in building sites, many of which were eagerly taken, and houses in terrace form, detached, and semi-detached respectively, erected thereon by capitalists, and no sooner ready than occupied. Various new roads have been recently constructed likewise, sewers provided, and boundaries defined by substantial walls, so as to render every possible facility and encouragement for building operations. We could scarcely credit it, but are assured that an excellent quality of rubble masonry can be executed for about 5s. a perch, owing to the stone being close at hand, and lime and sand obtainable for 9d. a hogshead and 6d. per load respectively. A first-rate quality of hard burned stock brick, the manufacture of the proprietor, Mr. W. Bentley, whose enterprise is beyond all commendation, is had for 24s. per 1000, and for internal work place brick at 18s. We cannot, with such considerations, wonder therefore at the unprecedentedly rapid rise from a state of nothingness of this locality. Amongst those who have invested up to the present are Mr. John Bentley, who erected, after designs by Mr. Carson, architect, a very handsome villa, with extensive out-offices; Messrs. Campion, Daly, Crowe, Sparrow, Webb, Stanley, &c., &c., all dwellings of more or less architectural pretensions. Mrs. Edmundson (widow of the late Mr. Edmundson of Capel-street) has also built a fine house and erected gas works at the rear, which, to the great convenience of the neighbourhood, supply light to a lamp on the public pathway. No doubt works on a larger scale will soon be erected, and ensure the great desideratum of perfect light throughout. Mr. Taylor, a builder, has been speculating—we believe successfully—in erecting for subsequent sale, and has reared five houses, rather more ambitious, however, in their external design than meritorious. A new church is to be added immediately, and plans have been prepared by Mr. Hones, architect, who was also professionally connected with several of the dwellings before enumerated. A large area has been staked off, and is about to be laid out as a pleasure ground and ornamental gardens, with a lake in the centre. We shall not be surprised hereafter to find "a Crystal Palace" contemplated! The railway company promptly complied with Mr. Bentley's request to establish a station at Foxrock, although the Carrickmines and Stillorgan stations are only about a mile at either side of it, and have caused a neat building to be erected. Mr. Bentley himself runs a well-appointed car to and from Kingstown, so that there is no lack of conveyance. A hotel is in course of completion adjoining the station; in fact, the general accommodation is most complete. We wish we could say the same for some much older suburbs. The principal portion of the road and sewerage works have been executed under the inspection of the surveyor, Mr. Willis, who is constantly employed on the property by Mr. Bentley.

There is a steady rise in the daily number of visitors to the Exhibition who pay at the doors.

Notes of New Works.

The completion of the tower, and erection of a spire thereon, in connection with the Roman Catholic Church of St. Lawrence O'Toole, are being proceeded with. The spire will be a broach, and have two rows of spire lights, with a gilt cross at its summit, which will attain an altitude of about 200 feet above ground line. Mr. John Bourke is the architect, and Messrs. Murphy and Son are the contractors. [We are glad to see our spires, hitherto so few and far between, on the increase.—Ed.]

The works at the Ormeau bridge, Belfast, are being rapidly pushed forward; all the arches are keyed, and two of the centres struck. There are four segmental arches, each of 45 feet span, and with nine feet rise; the abutments and piers being 22 feet high. An embankment has been thrown up out of the old river bed, and encloses the entire site of the new bridge, and a large area besides which is kept dry by a steam pump. The cutting and filling required to form the new approaches are also in a forward state, and when finished will be a great improvement on the old steep descent of one in 20, but now reduced to one in 60, the width also being increased from 80 to 50 feet, or 42 feet between the parapets. The stone forming the abutments, piers, and sheeting of arches, is from the county Down quarries, within five miles of the structure; that used for the front arch stones (*cousseirs*) being from the county Tyrone. Messrs. Lanyon and Smyth are the engineers, and Messrs. Connor, McLaughlin, and Harvey, the contractors; and Mr. N. Berry the superintendent, on the part of the Board of Public Works.

Sundry alterations and additions are being made at Brackens-town House (Mr. R. Manders, proprietor), under the directions of Mr. Wm. D'Este Smith, architect, by Mr. James Freeman, builder.

The extensive premises known as "Mercamp," situate in Vernon Avenue, Clontarf, at the intersection of the Green Lanes, have been taken by Mr. George Tickell, and are by him about to be converted into two distinct and spacious dwellings, with architectural exterior and commodious outbuildings, the position of the existing entrance to be preserved in a modified form, and with new lodge for one, and a new gateway and lodge to be formed in Seafield Avenue for the other. This arrangement has been designed by Mr. J. J. Lyons, architect, who will superintend the works to completion.

LAW NOTE.

Michael Lynch v. Henry Hall.—Undefended action for price of bricks sold and delivered, under contract for supply of 400,000 to the defendant, a builder in Lower Mount-street. Plaintiff is a brick-maker in county Kildare. It was stated that the bricks were required in the carrying out of a contract by the defendant with the Corporation of Dublin; that 110,000 bricks had been delivered, and the sum sought to be recovered in the present action was £166, composed of various items. The jury found for plaintiff £166.

The report of the members of the defence committee on the Spithead forts has been issued. In addition to the six commissioners originally appointed, four others were added to it—viz., an artilleryman, an engineer, and two naval officers. The report was agreed to unanimously, and is in favour of a combined system of forts and floating batteries as the only efficient mode of providing for the defence of Spithead; and further, that the ultimate expense of providing for the defence of Spithead by ships alone would far exceed that of forts and ships combined.

Review.

Railways; their Progress and Advantages. An Essay. Dublin: Peter Roe, 42, Mabbot-street.

THIS is a reproduction, in pamphlet form, of an essay read before the Young Men's Christian Association, and divesting it of its evangelical tendencies, it has some theoretical instructive bearings. The author sketches the history of roads "in years gone by," and says "it was comparatively late in the world's history when proper roads were constructed," observing that "the earliest for the purposes of commerce were made by the Phœnicians and Carthaginians 1200 years before the Christian era." He then proceeds to notice the Applan way, and remarks that "it has been calculated that roads do not exist in more than two-sevenths of the inhabited parts of the globe." After various other preliminary remarks, not exclusively relevant, the immediate question, the object of the work, is entered upon, but the old history of the first locomotive and the first railway is reproduced for the hundred and ninety-ninth time. Enumerating the manifold advantages of travelling by rail and steam compared with the old system, the author urges that "Railways unite more of town and country life—the tropics with the poles; they open the resources of the soil, as well as of the mine, and by reason of the vast in-

crease of commodities transmitted, the quantity of labour has increased, and the wages of the labourer have been doubled. It has been calculated that one in forty of the entire population of the kingdom is dependent upon railways for employment."

This certainly is an argument in favour of machinery to which we always inclined, and with much reason, however, we may sympathise with those individually affected, by the innovation on ancient customs. A passing allusion to Watt embraces the following:—

"For fifty years the steam-engine remained a barren fact in the archives of science, when the Glasgow mechanic breathed into it the spirit of vitality. In his obscure position he persevered against embarrassing circumstances, against doubt, opposition, and ridicule, until at length, by time and patience, truth was triumphant, and mankind now gathers the rich harvest sown by his illustrious labours."

NEW PATENTS.

List of Letters Patent which passed the Great Seal on the 9th, 13th, 16th, and 20th May, 1862; Messrs. Byrne and Lambert, agents, 4, Lower Ormond-quay, Dublin:—

R. Bellis, for "An improved method of laying wood floors."

H. R. Fricker and J. Manly, for "Improvements in apparatus for facilitating the cleansing of sewers and other water courses or ways."

R. Harcourt, for "An improvement, or improvements in fastening knobs to doors, drawers, and other articles, and in connecting knobs to spindles."

J. Tangye, for "An improvement, or improvements in hydraulic lifting jacks."

H. Bowen, for "Improvements in gas meters."

E. D'Estangue, for "An improved instrument for drawing teeth."

J. Hawkins, for "Certain improvements in bits for riding and driving."

R. A. Brooman, for "Improvements in breech-loading fire-arms."

J. C. Croxford, for "An improved mode of fastening doors, and for other similar purposes."

W. P. Baylis, for "Improvements applicable to buildings in order to facilitate the extinguishing of any conflagration which may happen therein."

A. V. Newton, for "An improved arrangement of fire-escape."

J. B. Hurlard and L. G. Poppel, for "An improved process for hardening stones and plaster of Paris, and making them impervious to water."

J. Standfield, for "Improvements in apparatus for regulating and indicating the speed of steam-engines and other machinery."

Miscellaneous.

HIBERNIAN AND CANADIAN MINING AND EXPLORING ASSOCIATION.—Under this title a company is proposed to be formed to raise a fund to defray the expenses of one or two gentlemen to Canada East, in the district of St. Francis, to secure some valuable mineral properties reported on by Messrs. Wilson and Robb, C.E., of Montreal, and which have been highly approved of by Lord Aylmer. We have seen many fine specimens of copper and other ores from the Acton, Balrath, Ascot, Wickham, and other mines in the district; also chrome iron, field spar, and slates for roofing, which have been pronounced equal to the Welsh slates, and will be likely to supersede the latter in America. Mr. William Journeaux, of Messrs. Richard Booth and Co., Bride-street, is, we understand, the chief promoter, and from him all particulars may be learned.

ANTICIPATED LOAN OF £100,000 TO THE DUBLIN, WICKLOW, AND WEXFORD RAILWAY COMPANY.—From the official announcement that the line to Gorey is now to be pushed with vigour, it is anticipated that the Exchequer Loan Fund Committee are about to comply with a recent request of the Dublin, Wicklow, and Wexford Company for a loan of £100,000, for the purpose of carrying on the extension line. The loan, when granted, will be arranged on the customary terms, and mainly at the instance of Mr. Wm. Dargan.—*Wexford Constitution.*

FEMALE INDUSTRY.—There are some remarkable specimens in the Exhibition of patient industry on the part of the fair workers with the needle. Miss Jane Borwick, for instance, shows a perfect marvel of fancy work in a raised crochet counterpane. Last year this lady made a number of articles in raised crochet, intended as a bridal present for the Princess Alice, which excited great interest among those members of the aristocracy who have the opportunity of seeing these beautiful works. The statistics of the work in this counterpane are very curious. The roses contain 2,606,370 stitches, the leaves 191,880, the grapes 58,851, the stars 50,100, and the flowers 14,620—making a total of 2,921,821 stitches. The quantity of crochet cotton used was 62,000 yards; the time taken for its entire completion was three months working on an average 12 hours per day.

THE QUEEN'S THEATRE.

THE burlesque of "*Eily O'Connor*," the heroine of the "*Colleen Bawn*," is one of the best written, and, as far as this establishment is concerned, the best produced that we remember. The incidents in the original drama are tolerably faithfully preserved, and the several characters are personated with uncommon ability. Mr. Ellerton is superlatively droll as Eily, and his make-up and gestures convulse the audiences that nightly throng this too cramped-up theatre. Miss Sidney, who has deservedly won laurels from the Dublin people—and knows how to keep them—as Miss Bellair as Hardress, Miss Parker as Mrs. Cregan, Mr. Vivash as Danny Mann, and little Saunders as the inflexible Corrigan, are each inimitable in their respective parts. Mr. Duff personates Kearsy Daly, and Miss Miles the younger, Anne Chute; but in the travestied version there is little scope for the exercise of their well-known ability. The dialogue, written by Mr. Byron, all through is racy and witty, without partaking of stupidity, which generally characterises burlesques; there is, moreover, a marked improvement in the orchestra, dresses, scenery and other appointments, which not a little contribute to the general success of this production. The cavewoman, where the gentle Colleen tears Danny Mann's hair and scratches his face, and is afterwards seen with dishevelled hair dancing in the water, sometimes heels upwards and sometimes erect, and singing "*A Cure, a Cure, a Perfect Cure*," is indescribably queer. Mr. Webb, whose managerial competency we never doubted, and whose enterprise is patent to all frequenters of his theatre, has reason to congratulate himself on this his latest effort. Indeed we question if, in point of *costs*, it could be excelled, or even equalled, at any other establishment. Miss Di Rhona, a Serbian danseuse, has also been a great card here for some fortnight past, her engagement terminating as we publish. As an actress she is vivacious and graceful, but as a dancer rather more remarkable for the animation of her movements than—what may be generally defined as—"the poetry of motion."

BY ROYAL LETTERS PATENT.

Barff's Processes for indurating Stone, and Coating Cement, Stucco, &c.

THE objects effected by these processes are the preservation of Stone by chemical means, the Waterproofing Porous Stones, Cement, Stucco, &c., whereby Damp cannot penetrate Walls, and the Coating of Cement and Stucco with a hard, non-absorbent material which is *imperishable*, and therefore does not require repetition, and which can be coloured to any desired tint. Buildings faced with Cement or Stucco, and coated by this patent process, have the appearance of Stone. There is no gloss, as in Oil Paint, and dirt can be easily washed from the surface. The materials used form a hard, insoluble glass (Silicate of Alumina and Zinc), which cannot be dissolved by acids.

Messrs. BARFF and Co., Dublin Stained Glass Works, Potter's-alley, Marlborough-street, give estimates for the preservation of Stone, for coating Stucco, Cement, &c., with simple tints or decorative painting. The trade supplied with the Patent Materials, and instructions given for their use.

Specimens of the Patent Solutions, with illustrations of their action, are exhibited by Messrs. BARTLETT, Brothers, and Co., of Devonshire Wharf, Camden Town, London (by whom they are exclusively manufactured) in their Case, No. 471, Class 2, International Exhibition, 1862.

Messrs. BARFF and Co. refer, by permission, to Dr. Sullivan, Professor of Chemistry, Cecilia-street School of Medicine; Thomas Plunkett, Esq., Rose Villa, Roundtown; also to the Messrs. Fry, of Westmoreland-street, for whom they have executed work.

THE PATENT CRYSTAL WINDOW BARS, adapted for Domestic

Windows, Shop Fronts, Conservatories, Skylights, Verandahs, Exhibition and Counter Cases, Aquariums, Fern Cases, etc., etc. combining perfect transmission of light, durability against rust or decay, and economy in the facility with which they are kept clean.

Aquariums with Slate or Marble Bottoms of various sizes, with or without Fountains, also of glass.

Manufactured by LLOYD & SUMMERFIELD, Park Glass-Works, Birmingham.

All kinds of Flint Glass, cut and plain, Coloured Window Sheet, Optical Sheet, Coloured Lenses, etc.

Agents at Dublin—Messrs. SITHORPE and SON, CORN-HILL.

TENDERS.

For the erection of the Old Men's Asylum, Leeson-park, Mr. W. Murray, Archt. :

A. and N. Hammond	..	..	..	£3900	0	0
Thomas Wardrope and Son	..	..	..	3582	13	7
Michael Meade	..	..	..	3300	0	0
Thomas Millard	..	..	..	3475	0	0
William Gibson	..	..	..	3720	0	0
George Farrell	..	..	..	3145	0	0
George Carroll	..	..	..	3117	0	0
John Butler and Son	..	..	..	3100	0	0
John J. Nolan	..	..	..	3000	0	0
Samuel Bolton	..	..	..	3000	0	0
John Nolan	..	..	..	2900	0	0
James Freeman	..	..	..	2400	0	0
George Moyers (accepted)	..	..	..	2800	0	0

For Improvements to Male portion of Omagh Prison, Boyd and Batt, Architects, Belfast and Londonderry:—

W. Mullin, Omagh	..	..	..	1450	0	0
W. Scott, do.	..	..	..	1421	15	8
F. M'Gaughey, do. (accepted)	..	..	..	1297	10	0
J. M'Elroy, do.	..	..	..	825	5	0

NOTE.—Since our inner sheet, containing a notice of the designs for Carlisle bridge, was put to press, we have learned that the exhibition of them will not be open to the public until after Wednesday, the 4th inst., on which day the Lord Lieutenant has appointed to attend, and inspect them. We, therefore, to avoid inconvenient results, hasten to correct the statement in the article in question, that "they are now open for inspection."

London and Paris Great Exhibitions



Prize Medal Bells.

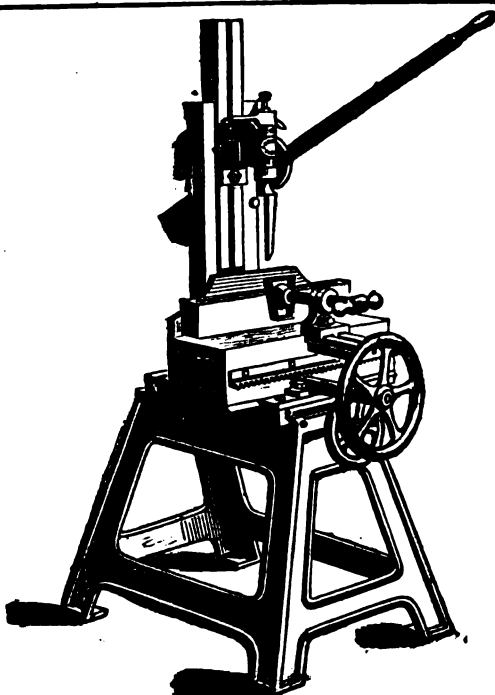
AUCTION OF WOOD GOODS.

PANDAL MACDONELL AND CO.

will hold their next Sale of Wood Goods at the Stores, SIR JOHN ROGERSON'S-QUAY, on TUESDAY, the 17th inst.

Full particulars of the goods to be sold will be furnished previous to the day of Sale.

JAFFRAY BARCROFT, Broker and Measurer, 42a, Gt. Brunswick-street.



JOHN WALKER

(LATE JOHN R. JENNINGS),

HARDWARE MERCHANT.

BUILDERS', CABINETMAKERS', BELLHANGERS'

AND COACHBUILDERS'

WHOLESALE IRONMONGER,

11, Edmund Street, Birmingham.

AGENT FOR IRELAND AND SCOTLAND FOR—

HAIGH'S PATENT MORTISING MACHINE.

N.B.—Letter orders promptly executed.

The Dublin Builder.

VOL. IV.—No. 60.

PUBLIC CLOCKS.

NOT unusually prominent amongst the features of a city or town are its indicators of "fleeing time;" and whatever positions they may occupy—whether in independent towers, or in connection with public buildings, in superstructures over roofs, in porticos, or otherwise—they are, when their accessory parts are judiciously treated, a pleasing element in an architectural composition, simultaneously serving an important utilitarian purpose. To continental cities this remark is peculiarly applicable; but without quitting the United Kingdom, we may adduce as an example the "clock tower" of the palace at Westminster, the most charming feature in the design of that building, and perhaps the most beautiful of its kind in the world, which, owing to its noble elevation, is seen for miles at either side of the Thames both by day and night (in the latter case the four dials being illuminated): and not only delights the eye, but imparts information, the value of which—in the midst of a busy multitude, to whom every moment is a golden treasure—cannot be overrated. London thoroughfares, albeit, are generally favoured in this regard; "public clocks" meet the eye in all directions, and not a few of them are illuminated. We take one of those many arteries as an illustration. Standing at Charing cross, some half dozen clocks are visible at a glance during the day time (one regulated by telegraphic communication with Greenwich Observatory), and at night the dial in the Campanile at the Horse Guards is lighted from *without* by powerful lenses. Passing up the Strand towards Temple Bar, the dials in the spired tower of St. Mary Le Strand church (Gibb's *chef d'œuvre*) first are most conspicuous; and proceeding up Fleet-street to Farringdon-street, and on through Ludgate-hill and street, a view is obtained of the great clock of St. Paul's. Turning into St. Martin's Le Grand, and up Cheapside into Poultry, frequent clocks, including that projecting from Bow Steeple (one of Wren's masterpieces), and of business establishments along the route, greet one, until the great "civic timekeeper," the Exchange clock, is encountered. At foot of London bridge is an appropriately designed clock-tower, and to the never-ceasing streams of people who pass that way, it proves an invaluable record. But this ample supply of clocks, instead of proving an acquisition, would evidently tend rather seriously to embarrass, were it not for their general accuracy, which, however, in the case of the principal, is proverbial, a fact guaranteed by the names of such manufacturers as Dent, Benson, Bennett, Moore, &c.

At this point, however, the question turns for home consideration. In Dublin there is a proportionate abundance of "public clocks," but how far their government may be properly relied on, has been thoroughly exemplified in the frequent misdemeanours of the premier, "the Post Office clock." For many weeks recently, as on previous occasions, his horologic honour remained a "barefaced" subject for general regard—*sans* hands, *sans* tongue; and now his senses being restored, we must only hope that every stroke will be penitential for his numerous past errors. But at best is he happily circumstanced for a public duty? We think not. At certain points of sight—the massive portico pillars intercepting—he is not visible at all, in sickness or in health; and under the most favourable circumstances, his "diminished head" demands from weak optics, at either side of that great thoroughfare (the pride of the Irish metropolis), Sackville-street, the accessory aid of what, in vulgar *parlance*, is termed spectacles; while those passing at foot of his chair, and partaking of stiff-necked tendency, would feel considerable difficulty at any period of the day or night, in interpreting correctly the various phases on his ever fickle countenance. In proximity hereto is brother Rotundo, another "scamp," who glories in doing everything wrong himself, and setting every person who refers to him wrong likewise; and a somewhat similar remark is applicable to his distant relative, "George," who suffers from the family failing of quadruple-faced mendacity, so superlatively predominant in cousins "Custom-house" and pepper-box cadd "St. Paul." Those respectable citizens, Kinahan, Law, and (hancellor (not forgetting Waterhouse and the Alliance Gas Company), have done some good service in providing time chronicles; but in point of unerring accuracy, the opposite neighbours at the north side of Carlisle-bridge, carry the palm—the last-named in the parenthesis being of a somewhat more erratic temperament than his

fellow, and, moreover, indulging in an occasional "speer." The Drogheda terminus clock is a fit subject for a Commission "de lunatico inquirendo," in which the Portobello and the Rathmines Towns' Commissioners' clocks may be included. Could even the humorous genius of "William Scribble, Esq." the author of the admirable "Old Carlisle Bridge Lament," be brought to bear on a chorus of "Dublin Clocks," we apprehend he would have considerable difficulty in arranging a score for such discordant elements. Possibly these facts may account for the general well-being of our metropolitan clock and watchmakers, as every man, however humble, and who admires time, will discard the public references as unworthy, and secure a trusty chronometer for his own pocket. May we not here appropriately note a suggestion, that in conjunction with architectural works now on the tapis for this city, the deficiency complained of may be considerably obviated? and further, might it not be well worthy the serious consideration of the custodians of the Albert Fund, that the proposed memorial should take the form of a handsome clock-tower of commanding height, in a prominent position, and suitably designed as a receptacle, in its upper stage, for the manufacture of some of our noted clockmakers, Donegan, Doblyn, Walsh, or those before named, and thus combine utility with ornament? Concluding this subject, we notice that the Ballast Board have just caused to be fixed between the piers of the first-floor windows of their offices in Westmoreland-street, two dials, barometrical and thermometrical respectively, which *will* prove very useful if reliable in their mechanical arrangement.

ENGLISH RAILWAY ESTABLISHMENTS—THE LONDON AND NORTH WESTERN.

ONE is struck with the capacity of the numerous railway termini and their vast appendages of stores, workshops, locomotive and carriage houses, &c., &c., which serve as the respective nucleus of traffic between the British metropolis and every quarter of the globe. Of these we may enumerate the London and North Western at Euston-square; the Great Northern at King's Cross; the Great Western at Paddington; the London and South Eastern—with a network of various converging lines—at London Bridge, the London and South Western near Waterloo Bridge; the Eastern Counties at Shoreditch, the Crystal Palace, &c.

The two former traverse England and Scotland to Edinburgh partly parallel, embracing the respective towns in their route, with innumerable junctions, and each attaining Liverpool; the Great Western (broad gauge) also stretching one of its long arms to Birmingham and Chester, where it meets the London and North Western. It must be obvious that there is more or less rivalry of interests between these three Companies; and from this fact an opposition which, if persevered in, would have proved ruinous to each, occasionally sprung up, and the public for a period had the benefit of locomotion at a mere nominal figure. That good sense, however, which is an Englishman's characteristic, suggested on reflection that "the better part of valour is discretion," and the feuds ceased by an arrangement to equalise the fares both for general traffic and for excursions, each to do the best it could for itself, while acting in perfect accord with its rival as regards booking from the points of junction to the respective stations on each line. We question if this mutual co-operation at the established rates is not very much more beneficial to the *general* public interest, than if the opposition with mere nominal rates had continued, and of which the comparative few might avail themselves in each case.

Viewing the architectural merits of the respective termini, the Paddington—which is covered in with a noble roof of iron construction (as they all are), and of charming design, comprehending, in addition to the ordinary booking and other offices, a magnificent mammoth hotel—claims precedence; but the "King's Cross" and the "Euston" have each their features to be admired—the roof of the former being of bold design, with semicircular ribs; and the elevation, which is in brickwork of remarkably excellent execution, displaying two great arches (of we believe 70 feet span each), abutting against a central clock-tower or campanile, and projecting wing-piers—the composition generally being a successful union of engineering and architectural skill.

Of the "Euston" and its concomitant establishment and dependencies, it is our especial purpose to speak now more minutely; and such particulars as we can chronicle will be read with greater interest from their local bearing; the L. and N. W. line forming the great artery of communication between England and Ireland, and the Company having virtually a terminus in Dublin, employing many native hands, and, as we are informed, about to extend their operations at the North Wall Quay most comprehensively. The immediate station building at Euston-square is entered by an approaching train on a curve with spacious platforms on either side extending some hundreds of yards, and proportionately broad, in a series of spans, covered in with iron roofs of horizontal and

diagonal construction, sustained on a perfect forest of metal columns, and including a covered and paved carriage way, wherein innumerable vehicles, from the *pro bono* 'bus to the more exclusive Hansom, await the arrival of each train. Exit to the street is obtained through ample gateways on the principal front, filled in with elaborate ornamentation in cast iron. Between this portion of the premises and the departure platform, for the "Irish express mails" and other trains, is a grand hall of fine proportions, with booking offices on either side, and carried up the entire height of the building. It is adorned with a marble figure of the great railway pioneer, George Stephenson. Proceeding outward a spacious court-yard is attained; a colossal tetrastyle portico of Grecian Doric order, with central and side gateways, forming the principal entrance. This structure, although of noble aspect and architecturally meritorious, has a peculiarly isolated and *outré* appearance when contrasted with the surrounding buildings, of which, however, we presume it was originally designed to form a harmonious part. Close by is the Euston Hotel, a first-class establishment, wherein many a weary traveller finds fitting repose, and the wherewith to minister to his luxuries and necessities. This terminus, although commonly designated the "Euston-square," is really not so placed as to justify such title, abutting, as it does, directly on a leading street, which separates it from the former. Visiting the Camden town (or Chalk Farm) junction, some two miles distant, where the branches to the docks and the city unite with the trunk line, covering an area thereof of about thirty acres, we come upon another monster establishment of stores and workshops, rails, switches, and sidings innumerable, whose apparent confused ramifications to the uninitiated would seem to puzzle the most experienced pointsman. Yet accidents are of comparatively rare occurrence—the magnitude of the traffic considered—although the site in question was the scene of a sad and fatal disaster not so long since. From personal observation on many occasions, we can bear testimony to the general caution of the officials, and their obliging disposition manifested towards passengers. In further illustration of the great capacity of this railway, we may quote the returns of "rolling stock," taken some years since, and reproduced in a late number of the "*Building News*," which says "that, with the exception of the first item named, it would at this moment be fair to add thereto *one-third* more:—1 State carriage; 555 locomotives and tenders; 494 first class mails; 420 second class carriages; 842 third class; 25 post offices; 242 carriages, trucks for letters and newspapers; 201 guards breaks; 260 horse-boxes; 7885 goods wagons; 14 trolleys; 1155 cribrails; 5150 shutts; 162 cart-horses; 41 patent breaks."

Turning our attention homeward, we find now belonging to this Company a very extensive goods' depot at the North Wall, a bi-daily communication being maintained both ways between Dublin and London (irrespective of the mail-service altogether), by the Company's fleet, which comprises the powerful steamships, Admiral Moorsom, Telegraph, Cambria, Hibernia, and Sea Nymph. Next to the City of Dublin Steam Packet Company's mail boats, these are not inferior in point of seafaring qualities to any other vessels that leave our port, and some of them performed the "express" service (now done away with) with great efficiency for years. We have often seen their capabilities tested in the foaming sea that often rages in "the race" about the South Stack light, and elsewhere in "the chops" of the Channel. A third class passenger may now by this medium book through to Chester (149 miles) for *five shillings*, to London (828 miles) for *one pound*, and *vice versa*, with proportionate rates for other distances. The short sea voyage of five hours instead of twelve or thirteen, *via* Liverpool, is also a desideratum for those to whom time is an object, and who are possibly subject to suffer from sea sickness. The cattle traffic on this route has become considerable, and is its chief sustenance; interfering, we apprehend, though to an important extent with the previously enjoyed monopoly of the City of Dublin Company, which, however, still seems to retain sufficient to pay a good dividend, and deserves well for its enterprise and liberality. The two Companies work with harmony in their respective traffics notwithstanding, and to the London and North Western are the latter still indebted for a balance of the capital advanced to build the mail boats, which are a national credit and a great public boon. We believe, however, that the operations of either are only in their infancy, that of necessity the respective establishments will eventually occupy a tenfold greater area, and be in every respect far more comprehensive; a desideratum which will indubitably be hastened by the development of the projected new markets in the vicinity.

LABOURERS' DWELLINGS.—The most recent applicants for loans, under the Landed Property Improvement Act (10th Vic., cap. 82), for the purpose of erecting "labourers' dwellings," are the Dowager Marchioness of Ely for £300, to be expended at Magheraboy, Fermanagh; and Mr. W. E. Smyth for £200, at Delvin, county Westmeath. The former has also applied for a sum of £695 to erect farm buildings on same property.

PROFESSIONAL PRACTICE AND ARCHITECTS' CHARGES.

THE following is a copy of rules relative to practice and charges proposed by the Council of the Institute of British Architects, to be observed by all architect professionals:—

The usual remuneration for an architect's services, except as hereinafter mentioned, is a commission of 5 per cent. on the total cost of the work executed from his designs; besides which, all travelling and other incidental expenses incurred by the architect are paid by the employer, who is also chargeable under certain conditions, as hereafter mentioned, for time occupied in travelling.

But in all works in which the art required is of a high kind, and the expenditure mainly for skilled labour and not for materials, as *e.g.* in designs for the furniture and fittings of buildings, in their decoration with painting or Mosaic, for their sculpture, for stained glass, and other like works, the architect's charge is not made by way of commission on the cost, nor does it depend upon the time employed in making the design, but is regulated by special circumstances, and varies according to the skill and artistic power of the architect.

A commission of 2½ per cent. is to be charged upon such works as sculpture, stained glass, and others of a similar nature, for which the architect does not give the design, but arranges with the artists or tradesmen, and directs the work generally.

In works under £500 in amount, 5 per cent. is not fairly to be considered as remunerative, and in such cases it is just to the employer as well as to the architect, to charge by time or by a scale, varying from 10 per cent. for works under £100, to 5 per cent. on amounts above £500.

The commission is reckoned upon the total cost of the works, valued as if executed entirely by labour and of new materials provided by the builder.

The commission is to be charged upon the whole value of the work executed, with the addition of 2½ per cent. upon any omissions. This is exclusive of the charge for measuring extras and omissions.

The architect is entitled during the progress of the building to payment on account at the rate of 5 per cent. on the instalments paid to the builder, or otherwise to half the commission on the signing of the contract, and the remainder by instalments as above. All travelling expenses are to be charged extra.

These rules suppose the work to be executed within an easy distance of the architect's office; but if the work is executed at a considerable or inconvenient distance from it, an allowance beyond the 5 per cent. ought to be made for the time occupied in travelling, in addition to the actual expenses.

The percentage does not cover professional services in connection with negotiations for site, arrangements respecting party walls, or right of lights, nor services incidental to arrangements consequent upon the failure of builders whilst carrying out work; but all such and similar services are charged for in addition, the basis for charge being the time employed.

Supposing that the employer, after having agreed to a design, and having had the drawings prepared, should have material alterations made, an extra charge may be made according to the time occupied.

If the architect should have drawn out the design complete, with plans, elevations, sections, and specification, ready for estimate, the charge is half the usual commission above named.

If the architect should have, in addition, procured tenders in accordance, with the instruction of his employer, the charge is half per cent. extra to the above.

For works in the alteration of premises, the remuneration may be increased according to the time, skill, and trouble involved.

All of the following requirements for the buildings are included in the ordinary charge of 5 per cent.:

Preliminary sketches.

Working drawings and specifications sufficient for an estimate and contract.

Detailed drawings and instructions for execution.

General superintendence of works (exclusive of clerk of works).

Examining and passing the accounts (exclusive of measuring and making out extras and omissions).

No additional remuneration is due for making such a rough estimate as may be obtained, for instance, by cubing out the contents. If a detailed estimate be framed, additional remuneration is due from the employer.

An architect is bound, under the 5 per cent. charge, to provide one set of drawings and one set of tracings, with duplicate specification; it being understood that the architect is paid for the use only of the drawings and specification, and that they remain the property of the architect.

The charge for taking a plan of an estate, laying it out, and arranging for building upon, should be regulated by the time, skill, and trouble involved.

For actually letting the several plots (in ordinary cases), not exceeding a whole year's ground rent may be charged.

For inspecting the buildings during their progress (so far as may be necessary to ensure the conditions being fulfilled), and finally certifying for lease, the charge should be a percentage not exceeding half per cent. up to £5,000, and above that by special arrangement.

All the above fees to be exclusive of travelling expenses, and time occupied in travelling, as before mentioned.

The charge for the above does not include the commission for preparing specification, directing, superintending, and certifying for the proper formation of roads, fences, and other works executed at the cost of the employer, nor for putting the plans on the leases.

The following definite charges are recognised for valuation of property:—

The charge throughout is 1 per cent. on the first £1,000, and half per cent. on the remainder up to £10,000. Below £1,000 and beyond £10,000 by special arrangement. These charges do not include travelling expenses, nor attendance before juries, arbitrators, &c.

The charge per day which may be made by architects, depends upon their professional position, but the minimum charge is three guineas per day.

The charge for dilapidations, when estimated, is 5 per cent. as estimated, and in no case less than £2 2s.

It is not desirable that an architect should supply to builders quantities on which to form tenders for executing his design; but in case of such being done it should be with the concurrence of the employer, and the architect should be paid by him and not by the builder.

THE SOCIAL SCIENCE ASSOCIATION.

THE sixth annual meeting of this distinguished body commenced last week in Guildhall, London, under the presidency of Lord Brougham, who delivered a learned and comprehensive introductory address. The Congress divides itself for business purposes into six departments, viz.:—Jurisprudence; Education; Prevention, Punishment and Reformation; Public Health; Social Economy; and Trade and International Law.

The Very Rev. the Dean of St. Paul's presided over the educational department, and entered with much earnestness into the question of the religious training of children, who acquired in their early years either an affection for church, which never wholly deserted them, or else learnt to regard religion and religious exercises with coldness and aversion. At the close of the address Lord Brougham, on behalf of the section, thanked the Dean for the able manner in which he had dealt with the various subjects introduced into his essay. Papers bearing on elementary education, and mostly referring to the expected operation of the Revised Code, different features of which were viewed rather in a spirit of apprehension, were read by the Rev. D. Melville, Mr. Horace Mann, Mr. J. G. Fitch, and Mr. W. A. Sheppard. Over the third department, which devotes itself to the consideration of "the best means for the prevention and punishment of crime and the reformation of criminals," Mr. Thomas Chambers, Q.C., Common Sergeant, presided, and delivered a very effective introductory address, in which the past and present conditions of the criminal law were contrasted, and suggestions made for the further extension of reformatory efforts. Sir J. Jebb then read a paper on "the system of prison discipline in England." The other papers read in this department were by Mr. E. Shepherd, of Wakefield, on the necessity of a reformatory discipline in county and local prisons; by Mr. W. Graham, on statistics of crime in the borough of Bradford; and by Mr. R. Vaux, Mayor of Philadelphia, on the penal question generally, as an element in Social Science. The Vice-Presidents in this section were Mr. S. Cave, M.P., Mr. R. Hanbury, M.P., and Lord Radstock. The subject of public health, which engaged the consideration of the fourth department, though the most vital of any is in many of its details the least inviting. The President (Mr. W. Fairbairn) contrived to surround it with much interest in his opening address. Dr. Letheby then delivered some observations on the duties of medical officers of health, and read a report from Dr. Ballard, showing what the association of medical officers in London had accomplished in the way of *sanitary reform and the removal of nuisances*. The City Chamberlain next read a paper relative to ancient conduits, pumps, and modern drinking fountains, a portion of which we give elsewhere. Dr. Waller Lewis read a paper on "the health, past and present, of the working classes of the General Post-office." The details with regard to the appropriation of the Nightingale Fund were necessarily postponed, owing to the hour at which the department rose. In the fifth department of "social economy," Mr. R. Monckton Milnes, M.P., pre-

sided, and Lord Brougham, who visited each section in turn, devoted a longer interval than usual to the proceedings. At the close of the President's opening address Mr. R. Valpy made some remarks, insisting on the importance of local statistics for the promotion of social science. The remainder of the day was devoted to a consideration of the condition of the working classes, and of the advantages, or otherwise, accruing from the existence of co-operative societies. Mr. H. Roberts (well known in connexion with the extension and improvement of model lodging-houses,) entered at some length into questions affecting the instruction and training of the working classes in domestic habits conducive to their physical and moral well-being. In doing so he appeared to draw rather a sharp line between the English and Irish poor, alleging that there was something in the nature of the latter which prevented them from acquiring proper domestic habits. This line of argument called up Mr. P. Urquhart, M.P., and Mr. F. McCarthy, in reply, who contended that, as a town labourer would probably feel himself some loss if thrown suddenly into a remote agricultural district, in like manner allowances must be made for an agricultural race to whom gas and water pipes were novelties and luxuries. Professor Huber gave some of the results of his personal acquaintance with the working of co-operation in Germany, and read a paper on "the moral errors which endanger the permanence of co-operative success." The sixth department—Trade and International Law—was presided over by Doctor Travers Twiss. Its operations were, perhaps, the most practical of all.

In the evening the Educational Department, and the Department of Trade and International Law, reassembled at Burlington-house, when the attendance was even more numerous than in the early part of the day. The magnificent apartment, hung with valuable paintings, and the commodious library adjoining, were admirably adapted for the purpose, and the foreign members of the Association especially appeared very favourably impressed with the arrangements made for their reception. In the educational section the chair was taken, as before, by the Very Rev. the Dean of St. Paul's, and a good deal of interest was attached to the discussion, owing to the fact that invitations to attend the meeting had been sent to some fifty of the principal schoolmasters near London.

During the succeeding days the addresses and papers were likewise highly interesting, and shall be referred to hereafter.

ANCIENT CONDUITS, PUMPS, AND MODERN DRINKING FOUNTAINS.

IN the course of a very able paper read at Social Science Congress by Mr. Benjamin Scott, Lord Chamberlain of London, we find the following:—

"The frequency of application to these sources of supply attests both their utility and the severity of the want which existed, and to a great extent still exists. It has been ascertained that on an average day of sixteen hours there were 4,560 drinkers at the Royal Exchange fountain, 7,000 at that on Snow-hill, and no less than 9,000 at the Bethnal-green fountain. As many as 11,000 draughts daily have been taken at the latter fountain. About 2,000 draughts per diem is the average number at the fountains in by-streets. From these data it would appear that as many as 200,000 persons, at least, avail themselves daily of the comparatively limited supply at present existing. To furnish the whole metropolis adequately, some 300 additional fountains would be required. The classes of persons resorting to the fountains are mostly those engaged in drawing trucks, conveying burdens, and running on errands, together with shopboys and humble clerks, who partake of their meals amidst the hurry of business and often as they walk the streets. The young appear greatly to predominate as drinkers. On more than one occasion I have seen boys drawing trucks stop at cab-stands, and, in the absence of other modes of refreshment, slake their thirst at horse buckets, a fact which is suggestive, not only of urgent necessity, but of possible consequences of a very painful kind from the contagious diseases to which horses are liable."

HIBERNIAN AND CANADIAN MINING AND EXPLORING ASSOCIATION.—Under this title a company is proposed to be formed to raise a fund to defray the expenses of one or two gentlemen to Canada East, in the district of St. Francis, to secure some valuable mineral properties reported on by Messrs. Wilson and Robb, C.E., of Montreal, and which have been highly approved of by Lord Aylmer. We have seen many fine specimens of copper and other ores from the Acton, Balrath, Ascot, Wickham, and other mines in the district; also chrome iron, feldspar, and slates for roofing, which have been pronounced equal to the Welsh slates, and will be likely to supersede the latter in America. Mr. William Journeaux, of Messrs. Richard Booth and Co., Bride-street, is, we understand, the chief promoter, and from him all particulars may be learned.

TOWNS' SURVEY—No. V.

KINGSTOWN.

AN early and original notice of this important town was intended to be included in this series, but being forestalled in the intention by our excellent and venerable contemporary, *Saunders' News-Letter*, which frequently kindly avails itself of the information on "Progress" communicated in our pages, we present the following *terefrom* instead:—

"There is a far greater difference between Kingstown in 1862 and Old Dunleary, than between Rathmines and Ringsend. There must be very many who remember a time when the coast from Blackrock to Dalkey was one long prospect of large green meadows, here and there chequered with trees, but, except in one or two places, quite bare of human habitations. Possibly there are some whose memory reaches still further back, who recollect the terrible wrecks which occurred upon that rocky shore, before a harbour of refuge was dreamt of, before even the first small and rude pier for the protection of colliers and fishing-smacks was erected. In those days there was little prospect of the wretched fishing-village becoming the most important packet-station and the largest and most popular watering-place in Ireland. For about a quarter of a mile along the road which led to Dalkey, a few cottages, little better than hovels, formed a kind of straggling street, in which lodged the hardy fishermen who supplied the Dublin market, and supported themselves by a life hard and perilous, owing to the caprices of weather and the ruggedness of the shore. Some terrible catastrophes awakened the eyes of those in authority to the necessity of having a harbour of refuge on the south side of Dublin, conveniently situated, and adequate to an increasing trade, and after discussion of the merits of various sites proposed, choice fell upon Dunleary as the most eligible. From that day the place began to grow in size and importance, and by the time its two piers stretched into the sea to their full length, material progress had been made. The quarries of Killiney had been opened and utilised. The King had visited the capital of Ireland, and had sailed from the New Harbour, and with the old name Dunleary fled the poverty and squalor of the place, and the word Kingstown brought out builders to build handsome houses, fashionable people to inhabit them, and industrious tradesmen to enlarge the town. And so changing under the Royal charm the place grew rapidly—the straggling street was widened and lengthened, terraces opened off the main road, the large green meadows were traversed by new avenues, and dotted over with houses. It is not necessary to be very old in order to have some memory of this rapid transformation, under which a paltry village grew into a large busy town, and a stretch of quiet pasture land gave place to pretty villas and smiling gardens. The steamer came into the harbour, the railroad ran by the water edge, the natural capabilities and conveniences of the place were seen and taken advantage of, and the whole district quickly became populous, fashionable, and really prosperous. It is easy enough to trace the growth of Kingstown up to the year 1834, when the first Irish railroad was opened, and superseded the old-fashioned, slow, lumbering conveyances which had remained the same for so many eventful years, during which people had contrived to enlarge their liberties, but not to increase the comforts of life. But when the locomotive was fairly on the rails, and the first wonder and distrust which its advent occasioned had somewhat abated, the place advanced so rapidly that it is not easy to describe the features of progress which has been so rapid and so monotonous. The population has increased very steadily and quietly. In 1831, the population of the town was 5,736; of the parish of Monkstown, in which it is situated, 9,800; and of the parish of Dalkey, which for all purposes is a part of Kingstown, 1,402. In 1841, Monkstown counted 13,143 inhabitants, of which number about 7,500 belonged to Kingstown. In 1851, Kingstown contained 10,500 persons. The whole parish had a population of 25,000, and Dalkey of 2,250; meanwhile the number of houses in Monkstown had increased from something over 2,000 to over 5,000. The recent census has shown that Kingstown is one of the very few towns in Ireland whose population has increased within the last decade. It now numbers 11,584 inhabitants, showing a clear gain of 1,000; and, doubtless, the same ratio of increase extends to Monkstown and Dalkey, which are not included in the first table of general results recently issued from the Census Office. The aggregate population of the whole district in 1831 was 11,200; in 1841, about 15,000; in 1851, 27,000; and at present must be considerably above 30,000; so that in thirty years it has almost trebled. There is more than double the number of houses there were twenty years ago, there being upwards of 1,800, and the valuation of the township being nearly £53,000. These figures are of themselves sufficient to show the enormous advance that has been made throughout the whole district during a period in which other places more populous have thinned in population and sunk in importance. Kingstown have grown up other and smaller townships, each managed under was, many years ago, incorporated into a township, around which

the wise provisions of the act, with regularity and economy, by men who understand the interests of the places in which they reside. Whether all these different townships will ever fuse into one, is a matter to be left to themselves. The central town is at present a separate and growing municipality, thriving under its own control, well lighted, well paved, free to a far greater extent than other places nearer the metropolis from the nuisances of mud and dust. There are few eye-sore about the place, its streets and terraces are well built, its appearance is handsome, and it has a steady, business-like look, which speaks well for its future. Its inhabitants look forward to seeing it become a Parliamentary borough, and surely there are many other places giving to certain gentlemen the distinction of M.P. which have by no means as strong a claim to be represented.

After enumerating the principal causes to which the progress of Kingstown is attributable, and referring to the railway, the packet station, the clubs, the business establishments, the new omnibuses, the proposed steamers, &c., &c, our contemporary proceeds:—

"Very little will suffice to indicate the growth of Kingstown in size. The way in which to measure the increase is to look back a few years. In 1860 there were many new houses built, in 1861 scarcely so many, and this year the number of buildings in process of erection is comparatively small. But several new squares, terraces, and avenues have been built, or rather are being at present completed. In the principal street very few, if any, alterations have been recently carried out. A short distance before the railway bridge, at Glashtule, is a large gateway leading into a beautiful new square, of whose existence comparatively few unob-servant passengers would become aware. This is Clorinda, and is about the size of Fitzwilliam-square. It encloses with fine houses, designed with considerable taste, a large plot of ground planted with beautiful trees near the square in Bolton Terrace, placed upon somewhat higher ground. Not far distant is Royal Terrace, a very pretty place, exhibiting all the neatness and regularity of modern street architecture; Crosthwaite Park in the same direction is being built by a gentleman of that name, and just beyond Glashtule Bridge four new houses by the side of the railway have been erected by Mr. Blunden, and are approached from the road by a pretty avenue. There are even more buildings in process of erection at Monkstown. Belgrave-square is placed upon the property of Mr. Robert Gray. The north, south, and east sides are nearly finished. The east side is the property of Mr. T. Dockrell, the north of Mr. McConnell, and the south of Mr. J. K. Boswell. The average yearly rent of the houses is above £100. Not far from this Mr. Ardey is building upon the Alma-road, and in the same locality a new chapel is being erected. On the York-road, a new Presbyterian Church, similar in design to the very beautiful church at Rathgar, has made considerable progress towards completion. A notable fact with respect to all the recently-built houses in the whole district is the rapidity with which they let. Many of them are let before they are roofed."

The writer, after passing allusion to Dalkey, Killiney, and Salt-hill, returns to Kingstown, and says:—

"A place of such importance certainly needs hotels, not for the higher classes merely, and too dear for people of moderate means. Although there are two or three excellent hotels at present open, still one of a larger size, containing accommodation for all parties, with a scale of charges suited to every class, would be most acceptable in Kingstown, which, as a packet station, must form an occasional halting-place for passengers, whose ultimate destination it is or not. The new hotel at Bray, if successful, will, no doubt, stimulate some one to a similar speculation here. Another thing to be desired in Kingstown is the establishment of some local place of amusement. Why should people, if they need an evening's recreation, be obliged to travel up to Dublin to enjoy themselves, at the risk perhaps of missing the late train, and at the inconvenience of a journey, easy and quick enough by day, but not pleasant at night? An Assembly-hall suited for lectures, occasional concerts, local exhibitions, and meetings, would surely be a boon to a population of 30,000. Many smaller places in England have their own theatres and lecture-halls, needed not so much by people who can afford to go up to the metropolis as by the poorer classes. Mr. H. Morrow, in establishing a branch of his lending-library in George's-street, has done a service to the locality, by bringing the best new books and periodicals within the reach of even humble people at a moderate rate of subscription. As yet there is no newspaper in Kingstown, but perhaps it may not be long before this want is supplied; when, instead of having correspondence from Kingstown to Dublin, the correspondence shall be from the metropolis to Kingstown. There is, however, reason sufficient to congratulate the township upon the progress that it has already made—upon its advancing importance and its present capabilities of improvement and expansion. If it continue to grow at the same rate, it will, sooner or later, be one of the most important, as it is already, in proportion to its size, one of the most thriving towns in Ireland."

ON IMPROVEMENTS IN THE MANUFACTURE OF PEAT FUEL.*

THERE are few subjects which have attracted more general attention in this country, or which have been pursued with so little success heretofore, as that of the utilization of peat on any large scale. The land is burdened with nearly three million acres of bog, which, by resisting the efforts of the cultivator and impeding local intercourse, go far to neutralize any recoupment derived from them in the shape of an inferior fuel obtained in most seasons with difficulty. It is, therefore, but natural that many efforts should have been made to turn these barren wastes to some useful purpose, and consequently we find, from time to time, the philanthropist, the speculator, and the man of business emulating each other in this pursuit. But one common enemy has hitherto baffled the efforts of all classes, rendering abortive the most ingenious contrivances for the solidification of peat into a compact fuel, and frustrating the most elaborate chemical processes for the development of its more valuable constituents. This grand obstacle to progress is, water, which is capable of being absorbed by peat in an almost incredible proportion, and of being retained with an obstinacy not easily overcome. It is this property in peat which has hitherto baffled so many efforts to convert it into a more available fuel. In the first place, it is exceedingly difficult to deprive blocks of peat, however small, of the contained water; and secondly, as the water does evaporate to a certain extent, air replaces it, keeping the pores much distended, so that a bulky and unportable substance results, which always contains from 20 to 30 per cent. of water. Few of those who have given their attention to this subject, have appreciated the magnitude of this practical difficulty; very many have even omitted to test thoroughly the average quantity of moisture in our peat bogs, and will not believe the reports of those who know from actual experience how much water the Irish peasant raises and spreads out upon the ground in order to obtain a ton of fuel. Even very lately a pamphlet appeared, on the strength of which it was intended to found a commercial undertaking, and which assumed as its starting point a proportion of contained water, not more than one-fifth of that which actually exists.

The following table gives the average of several hundred tests by careful evaporation, showing the quantity of water contained in peat in different conditions of the bog, and in various stages of desiccation, under the ordinary method of cutting and air-drying. No attempt is made to distinguish between the light and dark brown and black varieties of peat, as the quantity of water contained depends far more upon its position and drainage in the bog, and upon the amount of drying which, when cut, it has received, than upon the ordinary difference of quality:—

The general mass of undrained peat bogs, not including the edges or the heathy surface	...	W.	P.	W.	P.
	...	from 92 by	8 to	95 by	5
Bog edges and parts of bog, more or less drained, in the state in which peat is generally cut	...	from 88 by	12 to	91 by	9
Thin upper surface of a well-drained bog for about one inch deep, all vegetation being cleared off	...	from 75 by	25 to	82 by	18
Turf in the state in which it is usually "footed," or raised into small piles	...	from 75 by	25 to	80 by	20
Turf when ready to "clamp," or build in larger piles	...	from 50 by	50 to	60 by	40
Turf ready to stack	...	from 25 by	75 to	35 by	65
Turf as generally used	...	from 20 by	80 to	35 by	65
Carefully stacked turf kept from six to twelve months in stack	...	from 18 by	82 to	20 by	80
Turf well saved and kept in a dry house for about two years	...	from 12 by	88 to	15 by	85

It will thus be seen that no small obstacle lies in the way of those who would prepare peat for burning by whatever method it be attempted; but those who have calculated on obtaining by the common system any considerable supply for commercial purposes from a single district of bog, have been met by the peculiar practical difficulty which besets this manufacture; for, when large quantities of common turf are required contrary to the usual rule in other productions, which diminish in cost proportionably with an increased make, the price of peat per ton is found inevitably to increase directly its manufacture is stimulated beyond a certain very moderate limit. The cause of this is obvious; the turf-cutter can only work round the edge of a bog, or upon occasional main drains; so long as he wishes only to produce a small quantity from a given length of bank, he can himself spread the sods as he cuts them; if, however, more is required, he must be attended by a wheeler, which at once doubles the cost, and where there is a

belt of land of more than forty yards wide to be covered, two or more wheelers are necessary. The cost of again collecting the dried turf, and concentrating it at any given place, of course increases *pari passu* with the increased cost of spreading. To give some idea of how much produce can be practically counted upon within a given district, it may be stated generally, that from 1,000 to 1,500 tons obtained from a line of turf-banks an English mile long, is a large yield for one whole year's operations, and that this can only be completely prepared, brought down from the bog, and delivered at road or water-side, at a cost of about 5s. per ton. If, however, a number of small farmers were to cut from the same mile of banks about half the above quantity, it would probably cost them about 3s. per ton similarly delivered. Whereas, on the other hand, if it were desirable or even possible to obtain say 2,500 tons from the same locality, it could only be effected at a cost of 7s. to 8s. per ton, and much of the peat would only receive indifferent drying, from being necessarily carried back on to the interior of the bog. The truth of these observations was clearly and unfortunately demonstrated in the case of the late Irish Peat Company, who required at their works near Athy a constant supply of fifty tons per day, or as much of that quantity as could possibly be obtained for the manufacture of oil, tar, paraffine, etc. Relying upon the statements of several writers, probably corroborated by their first experience of producing small quantities for experiment, they assumed that the common turf of the country (their raw material) would cost them 2s. 6d. to 3s. per ton, but they soon found that cost increase to 5s., and long ere they had secured even the minimum supply required to carry on the works with a prospect of commercial success, they found their average cost of peat to be from 6s. 6d. to 7s. per ton; and this increase of outlay, coupled with the downright impossibility of obtaining a much larger supply, were amongst the proximate causes of failure in that truly enterprising effort. Turning from this part of the subject, and admitting that peat manufactured in the ordinary way is a cheap and useful domestic fuel for those who can cut it for themselves and use it on the spot, we come to the main object of this paper, viz., a discussion on the improvements attempted or introduced in the above manufacture. And here it will be advisable to recapitulate the obvious defects in common peat, which require to be corrected, the properties which it is desirable to develop in it, and to state generally its constituents as a fuel when compared with coal and other combustibles, thus setting before us what has to be done in the matter, what kind of article we may hope to produce, and what will be its value. Common turf, independent of any difference in chemical constitution, has in itself, and in its mode of preparation, five main defects, which render it practically inferior to coal.

1. The consumer never obtains it in a sufficiently dry state to give its full effect in combustion.

2. As from one-third to one-fourth parts by weight of the peat of commerce is simply water, the consumer is always obliged to pay carriage on one ton of water for every two or three tons of actual fuel he receives, this constitutes a disadvantage quite distinct from that last named.

3. It is so bulky and porous an article, that it is impossible to convey it as cheaply as coal, and for the same reason it requires much larger arrangements of fire-grate, &c., to produce a given effect than is required for the same with coal, and from its lightness, though capable of producing a very intense heat, it will not bear the stimulation of a powerful blast.

4. The manufacture of common turf depends at all times upon favourable weather; its supply is, therefore, always precarious.

5. From the circumstances already explained, it is impossible to obtain a large quantity of fuel, as much, for instance, as would be extracted from a coal mine of very moderate capacity from any one estate, or even considerable tract of bog. The qualities, therefore, to be produced in an improved fuel from peat, so as to raise it as nearly as its chemical constitution will admit to the standard of coal, are as follows:—

1. Perfect or nearly perfect dryness, so that all the substance paid for by the consumer may be actual fuel, and not partly water, retarding combustion and increasing the cost of carriage.

2. Density, if possible, equal to that of coal, so that it may rank equally with coal in capability of transport (a most important quality), and also be a sufficiently compact fuel to be used with advantage in the same fire-grates generally in use for coal.

3. Hardness or tenacity, which, to a great extent, accompany density, enabling the fuel to be moved without much loss from abrasion, to be consumed in strong-blast furnaces, and to support, or possibly to support, the burden of metallic ores under reduction.

4. Any improvement in the mode of manufacture must include the completion at least of the drying process by artificial means, or else perfect dryness can never be attained, nor can any amount of dryness be depended upon with certainty in this climate.

5. Whatever method is adopted for natural drying previous to

* Paper read at Institution of Civil Engineers on 14th ult., by Mr. Hodgson.

finishing by artificial means (it being impossible practically to dry from the primitive state artificially), it must be such as shall produce a partially dry substance in large quantities, without incurring an increase of cost in proportion to the increased demand for it.

We now come to consider the chemical constitution of peat, and its consequent theoretical value as compared with coal. Finding many discrepancies in the various analyses extant both of coal and peat, which probably arise as well from difference of manipulation as from the considerable variation in quality of each fuel, it is fair to take a main analysis in both cases. The following may be relied upon as representing the general constituents of each substance:—

PEAT.			COAL.		
Carbon	..	57 per cent.	Carbon	..	85 per cent.
Hydrogen	..	6.5 "	Hydrogen	..	4 "
Oxygen	..	32 "	Oxygen	..	3 "
Ash	..	4.5 "	Nitrogen	..	3 "
			Ash	..	5 "
		100			100

Comparing these analyses, it will be seen that almost the only essential difference between the two fuels, regarded as calorific agents, is, that peat is deficient of carbon by about one-fourth of the quantity contained in coal, its place being taken by oxygen; and as fuel in combustion can receive all the oxygen it requires from the atmosphere, it is manifest that any contained in the fuel cannot be taken as a portion of its value; of hydrogen, which is four times the value of carbon as a calorific agent, peat generally contains a little more than coal, but this excess cannot safely be counted upon, as a considerable portion must be supposed to combine with oxygen, and forming water, to be partially lost as an effective agent.

COAL.			PEAT.		
Carbon	..	per cent.	Carbon	..	per cent.
Oxygen	..	"	Oxygen	..	"
Hydrogen	..	"	Hydrogen	..	"
Water	..	"	Water	..	"
Nitrogen	..	"	Nitrogen	..	"
Sulphur	..	"	Sulphur	..	"
Ash	..	"	Ash	..	"

We must therefore look to the proportions of carbon in each as the best test of the relative value of the two fuels, and from this we arrive at the conclusion that the duty of perfectly dry peat ought to be two-thirds of average coal.

And here it may be stated that this theoretical value is now found to be fully borne out in practice, for with compressed peat perfectly dry, two-thirds the duty of coal has been repeatedly performed during the last twelve months. In two qualities of no small importance peat does excel coal; it contains very little or no sulphur, which is of great advantage to any metal exposed directly to the action of its flame, and in scarcely any variety does the ash vitrify—a defect in most coal which is productive of much trouble to the firemen, and considerable waste of grate bars. Relying on the excellence to which it thus seemed possible to bring peat fuel, when those disadvantages were overcome on the one hand, and these perfections attained on the other, many men have started with high hopes and eager anxiety to carry to a successful issue so desirable an enterprise; and so far as the actual physical possibility of the matter, many have succeeded. But unfortunately in these degenerate days physical possibility is of no use whatever, unless it be accompanied by the far more important qualification of financial possibility. It is an easy and a pleasing pursuit to try what good things can be made out of comparatively worthless materials, but it only becomes a useful pursuit to the operator, and to mankind in general, when the "good things" are intrinsically more valuable to humanity than the labour and material which have produced them.

Many have made beautiful and compact specimens of peat fuel, have produced charcoal from it, have made moulded ornamental articles with it, and converted the spongy mass into a fine lubricating oil, clear white paraffine, and gas of high illuminating power; but how many have fulfilled the one common-place little condition of "making it pay?" As has been before stated, the one obstacle to the fulfilment of this little condition is—water; and this paper would never have been written were it not that there has lately been developed, and put into operation, a method of preparatory dessication which, leaving five-sixths of the water behind in the bog, actually, *in situ*, enables the operator to obtain, with much rapidity, a substance or raw material for future operations, consisting of very nearly equal parts of peat and water, instead of laboriously cutting and moving nine or ten tons of dead weight to obtain the material for one ton of real fuel. The discovery of this new process, coupled with progressive improvement in compressing machinery, have brought the hitherto experimental work at Derrylea, near Monasteravan, to a point of efficiency which leaves no further doubt as to the possibility of producing a dry peat fuel with reasonable profit, and on such a scale as, when

generally adopted, cannot fail to prove of benefit to the country at large. Before proceeding to describe, in detail, the process now in operation, we will trace some of the different methods which have heretofore been tried for the drying and consolidation of peat. To attempt a history of them all, would be unnecessary and wearisome, and present a retrospect not by any means encouraging.

In many parts of Ireland, where even turf fuel is scarce, the peasantry make for themselves an article called "hand turf," which is formed by working the wet substance into a pulpy mass with the feet and hands, and afterwards cutting it into squares as it lies like paste on the ground; these, when they attain a certain consistency, are repeatedly turned over and piled in heaps, and when tolerably hard are stacked for winter. This mode produces a fuel rather more dense and compact than common turf, but it is exceedingly costly, and no large quantity could be made. In Holland and Holstein, where fuel is very dear, and the peat bogs are often found totally submerged, a process somewhat similar is carried on; the peat is scraped up with perforated scoops, which allow the water partially to drain off; having been spread on a flat piece of ground it is then trodden out by oxen or men, and afterwards moulded, as we should common bricks. These are placed to dry on hard sloping ground, or wooden trays, and afterwards piled; but this operation will only pay where fuel is exceedingly scarce, and the climate tolerably dry.

An improvement on both these methods is now being attempted in Ireland; the wet peat is passed through a kind of conical culender made of perforated zinc, or other metal—this accomplishes the mashing process very completely, and strains off any sticks or rough particles, leaving the fuel, when afterwards dried, of a very fine and close texture. An ordinary brick machine forms the strained mass into blocks, which it is proposed to dry by exposure to the atmosphere, or by artificial means; but the manufacture is not yet carried on any extensive scale. Specimens, however, which have been carefully dried seem very compact, and peculiarly adapted for making peat, charcoal, or coke, of a more than ordinary tenacity.

The three foregoing methods have equally the disadvantage of dealing with, and frequently handling eight, nine, or ten tons of substance, for the production of one ton of fuel, and of occupying either immense time and space for air-drying, or burning a large, perhaps ruinously large quantity of fuel to attain at artificial dessication. Indeed so varied have been the attempts to dry peat altogether by artificial means, that its impossibility may be taken as an axiom. Containing, as usually cut with the slane, about eight or nine parts water to one of peat, it is difficult to conceive how artificial heat, or currents of air sufficient to evaporate eight or nine tons of water, could possibly be obtained by the combustion of one ton of peat fuel, without even expecting any portion of the ton to be saved for sale. Such evaporative duty as one to eight or nine is considered very good, when the best coals are burnt in the furnaces of well-constructed boilers; and although a closed boiler is probably not the best instrument for evaporating a large quantity of water economically, yet the fact that in peat the water is intimately mixed with an extremely non-conducting substance, renders it probable that in this condition it is even more difficult to effect evaporation than in a closed boiler, where the water is left free to the action of the natural currents produced by heat. Whilst experiencing the difficulty of obtaining a large supply of dry common peat, the Irish Peat Company erected two very large drying-houses similar to those used on the Continent for wood (which, however, when cut, is nearly as dry as air-dried peat). These houses were 150 feet long, 20 feet wide, and 10 feet high, and cost a very large sum of money; they were fitted with furnaces and long flues, and very ingenious arrangements were made to ensure constant currents of air, at one time even a fan blast being used. They were maintained at a temperature of from 100 to 120; and the peat, cut in ordinary sods, was introduced in lattice waggons, which allowed the air free access; but after protracted trials, and the consumption of much more fuel than could possibly be dried, the attempt with wet peat was abandoned, and others made with partially dry peat; but in no case was even a shadow of advantage gained, and the experiment went only to show that a considerable elevation of temperature, though combined with good artificial currents, will not compensate for the disadvantage of massing large quantities of peat together; thus hindering each portion from giving forth its moisture freely to the unsaturated atmosphere.

The person who first attempted to expel from peat the water by pressure was Mr. Wye Williams, who made an extended experiment with this view at Cappoge many years ago; he succeeded by hydraulic pressure in reducing wet peat to half its original weight and one-third its original volume, but the remaining water was so closely incorporated with the peat that very little time was saved in drying, and the blocks expanded a good deal during dessication, so as not to be much more dense than common turf. This attempt was lately repeated on a very considerable scale at the

Irish Peat Company's works, but with precisely similar results. The idea of drying peat in the ordinary manner, pulverizing it, driving off the remaining water from the powder, and then compressing it, appears to have originated twelve or fourteen years ago, with several persons about the same time, for there are not a few defunct patents on the subject, but their authors all appear to have had the idea that the peat-powder must be hot, and that the combination effected under pressure was to be prolonged by some oily development in the peat itself, due to the heated state in which it was to be fed into the mould, and perhaps a more mistaken or troublesome delusion never happened a really valuable principle. A few blocks of this dry, hot compressed peat were produced by hydraulic or screw pressure about this time—(i.e. previous to 1850), and having a high density, and burning exceedingly well in consequence of their perfect dryness, it became a question how such were to be produced in quantity, for hydraulic pressure was clearly too slow in action to be of practical use; variations of the lever and eccentric principle were therefore tried, and, by moving them very slowly, some tolerably good blocks were formed, but an attempt to drive any of them at a "paying" speed generally resulted in a fracture, and if not, the blocks were found to swell again and become too brittle for carriage. A machine of this kind was placed in the Dublin Exhibition in 1853, and another was set up at a bog in Kerry at about the same time, but never was brought into steady operation, probably from the same cause; it was constructed with a lever actuated by a cam, and was arrested for two or three seconds during the formation of each block. A machine was next constructed by Gwyne and Son for Mr. Hodgson, and erected in Galway in 1854, but this also was ultimately abandoned from constant failure in the different parts. All these machines suffered from two manifest defects, they were complicated with motions for filling and discharging the mould, in which the pressure was applied, besides the main motion for compression, and when driven at any speed exceeding five or six blows per minute, they failed to produce the desired effect, because the continuance of the pressure became then quite too transitory. But had success attended any of these machines, had any of them produced so much as two or three tons of fuel as dense and as portable as coal, the real difficulty of the actual manufacture would only then have commenced, for no provision had yet been made to supply these machines with dry powder of peat in any paying quantity. It was soon seen that to depend on making and grinding up common peat in this country would never answer, both on account of the small supply to be obtained in any locality, and because even that supply would cost too much to leave a profit on the manufacture.

A patent has lately been taken out for compressing peat dry and cold in a machine consisting simply of a horizontal reciprocating ram working into a tube or cylinder of perfectly uniform bore, very much resembling a cannon with open breach like the Armstrong gun; into this tube the peat powder falls as the ram draws back at each stroke, and very shortly filling the whole length, a considerable friction begins to take place against the sides of the tube, this soon increases to such an extent that as each charge falls in it is consolidated perfectly between the advancing ram and the column of peat in the tube before the frictional resistance of this column is overcome and the whole mass moves on. Thus, simultaneously, a block is formed at the breach end, and one made, perhaps, a moment before drops out at the further extremity.

This machine combines the advantages of requiring no feed and delivery motion of retaining each block fast in the tube (which is about five feet long) for more than a minute, whilst at the same time it delivers them at the rate of sixty per minute, making for one tube about fifteen cwt. per hour. It is now at work at Derry-lea, and is certainly the first machine which has, in the United Kingdom, produced several hundred tons of peat fuel of a density equal to coal. To supply this machine with dry material now became the grand difficulty, but here a fortunate discovery removed almost all difficulty at one stroke; it was discovered during last year that by harrowing over the surface of the bogs, a powdered peat four times as dry as the general mass, would be obtainable cheaply and in any desired quantity. Operating only on the upper structure of the bog, and removing a thin layer by two or three successive harrowings and scrapings each day, the great bulk of the water is never encountered at all, but sinks gradually away day by day to the drainage. This operation may be carried on at any season of the year on every day not actually raining, but, of course, it proceeds more advantageously in summer, when large stores of the powder or mull are collected and heaped in embankments, which are found not to reabsorb water. The average proportion of water is about fifty-five per cent., and the material, when collected, costs about 5d. per ton; a few hours are allowed to intervene between the harrowing and scraping, so that the air may assist in drying out the thin stratum exposed to it.

The complete desiccation of this powder is easily effected by passing it over extension plates of iron heated by the waste steam from this compressing engine, and it is then fit for being com-

pressed. By this mode peat standing in its primitive bog in the morning is harrowed, scraped, brought in, dried on the steam surface, and compressed, and before night falls as a complete and excellent fuel into the canal boat, which conveys it to market.

ON ARSENICAL POISONING.

By W. FERGUS, M.D.

ATTENTION has from time to time been called to the poisonous nature of arsenical preparations employed for colouring matters in articles of common domestic consumption, whether these are paper-hangings, materials for ladies' dresses, artificial flowers, or sweet-meats. It is rare that an immediately fatal issue attends the insidious action of the poison, when persons are exposed to its effects in any of the above forms. To my mind it seems, however, to be clear that it does very frequently produce what is called a low and miserable state of health. Three instances have come under my notice in a short period, where such a condition of health seemed to be closely connected with arsenical paper-hangings. A lady consulted me upon the health of her three boys; the eldest was under five years old, but they all had similar complaints—pining and miserable, fretful, and capricious about their food. I was informed that their day and night nursery had been newly papered, and on examining a piece of the paper, a considerable quantity of arsenite of copper was readily discovered in it. The paper was removed, and in a short time the complaints ceased, and they have never been so affected since. In another case, a house was papered with a dull green paper of various shades, which had been warranted by the architect to contain no arsenic. This house was inhabited occasionally by a family, consisting of three children, their parents, and servants. It was frequently noticed that a low state of health in nearly every member of the family regularly followed upon their taking up their abode in the house. It was well built, well drained, and well ventilated, situated in a healthy spot, not far from the sea. The uniform way in which a low state of health followed the occupancy of this house attracted my attention. The water was suspected to be the cause; but it proved upon examination to be of fair average quality, and free from organic matter. The paper, having been warranted to be free from arsenic, was not at first thought of, nor was it so thought of until the similarity of the affection to that caused by arsenical paper-hangings in other cases led to its examination, when in every paper used in the house arsenite of copper was found in quantities varying with the tint of the paper. The paper was removed throughout, and on subsequent occupancy of the house the family were perfectly free from the symptoms of the former ailments. Another case occurred a few months ago. A gentleman of active habits, and not at all likely to be the subject of fanciful affections, consulted me. He had enjoyed good health previous to having his room, which was a large and lofty one, papered with a wholly green paper. He complained of weakness, feeling oppressed by his work, sleeping heavily, but not refreshed. The appetite was not impaired; the pulse was weak, but not accelerated; the tongue indicated a state of irritation; there were also signs of irritation in the fauces. He could not in any way account for his state, nor was there anything very evidently out of order, excepting a general depression of the vital power. The paper was loaded with arsenical colouring matter. It was removed, much against his will, as he was an utter unbeliever in the possibility of arsenic in that shape hurting him. The result was most satisfactory. He had very little treatment; but he soon perfectly recovered, and I have only had occasion to see him once professionally since the paper was changed. These cases occurred in places remote from each other, and at different times; one in Lancashire, one in the Isle of Wight, and another in the south-west of England. It has, I am aware, been denied that arsenic used in paper-hangings produces a deleterious effect upon persons living in rooms papered with such hangings; nor am I prepared with an explanation of its mode of action. It cannot be doubted that small quantities of arsenic constantly reaching the vital organs will, in most people, produce a state of ill-health. Arsenic possesses, in a most marked manner, the property of diffuseness; and it has also the property of forming combinations with an immense number of other elements. Hence it is found widely distributed in Nature; and hence, also, the facility with which it is detected in the various processes of testing. It is essentially a volatile element. If we attempt to fuse it, we fail to liquify it; but a highly elastic vapour is formed. And, again, if we expose a few fragments of metallic arsenic to a temperature of from 70 to 90 degrees, it will lose weight, notwithstanding its acquisition of oxygen; showing that a portion has been either simply volatilized, or, what is more probable, that the missing arsenic has united with some other element to form a poison more deadly than itself.

THE NEW COLLEGE OF PHYSICIANS.

IN accordance with the promise contained in our description of this building accompanying the illustration of the exterior, and published in our last number, we now give a view of the spacious and highly ornamental apartment designed for "the College or Examination-hall," and which, as already stated, will be immediately approached from the first landing of the principal staircase. As the character of the mural and ceiling decorations, the fenestral arrangement, &c., is clearly illustrated in the engraving, further descriptive particulars than those given at p. 184 would be superfluous.

EARLY CELTIC ART.

IN enumerating the chief objects of interest in the South Courts of the South Kensington Museum, the *Athenæum* says—"Early Celtic Art has many illustrations, from the copper-gilt pastoral staff of St. Melis, the famous Kilkenny brooch, much resembling a Roman fibula, and a shrine, displaying many bold figures in relief, peculiarly Celtic in character, styled 'The Shrine of St. Monegan.' These, except the last, are lent by the Royal Irish Academy, together with a large number of gold ornaments, such as are found in multitudes in the Irish bogs, consisting of torques of twisted gold, and the broad-spreading head-ornaments of hammered gold plate that at one time excited such controversy amongst the learned. We did not observe the famous Irish Harp which belongs to this Society in the collection; it would have been worth seeing in London. Of similar character is the enamelled ivory tenure-born, the property of the Marquis of Ailesbury. Examples of such works as this are known to antiquaries; for instance, the Horn of Ulphas, preserved in York Minster; that of Atilla, and the famous Pusey Horn. Another curious work in ivory that will attract attention is the 'Main de Justice,' or sceptre, surmounted by a hand, the two first fingers raised as in the form for benediction; the property of Lord Londesborough. Another article in ivory is the magnificently-carved beaker, with figures of bacchanals in alto-relief, belonging to Lady Strangford,—an example of a very different class of art to the above, showing how ivory-carving became sculpture of a bold yet delicate kind."

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A GENERAL meeting was held on the 2d inst.—Mr. Arthur Ashpitel, V.P., in the chair. Mr. J. W. Papworth read a paper illustrated by drawings, on "An *Æsthetic* principle of decoration." An interesting discussion ensued, in which Messrs. W. White, J. H. Parker, Morris, Kerr, Hayward, Mayhew, and the Chairman took part. Some new members were afterwards admitted.

ACCOMMODATION IN IRISH LUNATIC ASYLUMS.

BY the recently issued report of the Lunatic Asylum Commissioners, presented to the Lord Lieutenant, we find that at the Central Asylum, Dundrum—"In consequence of the influx of patients and the number of criminal lunatics in gaols, still unaccommodated, the Board had to apply to his Excellency for an enlargement of the asylum by fifty beds, thus setting the hospital free for the reception of invalids, and not have it, as now, solely employed for dormitory purposes; 120 was the original number for which the building was constructed, and even for it the provision was rather restricted, some of the day-rooms being overcrowded. The additions, as suggested, are anticipated to be highly useful; a reading-room is proposed for the better and convalescent classes, as well as a refectory, large day-room, and a Turkish bath for general use; and provision is made for separating turbulent inmates from the more quiet and orderly. Among other improvements too, arrangements have been made with a public company in the neighbourhood for a regular supply of gas to the institution. The present accommodation in private asylums, including the three partly charitable institutions already named, is also stated through same medium for 600 patients, constituting an increase of 160 beds within the last five years, from which it is evident that the demand for asylum accommodation has not been confined exclusively to the humbler classes of society; for, as the necessity of extending the District Lunatic Asylums of Ireland has pressed itself on the attention of the public, a similar one has been experienced by the proprietors of private licensed houses from the same cause."

CONVERSAZIONE AT THE ROYAL HIBERNIAN ACADEMY.

INVITATIONS for a *conversazione* at this Academy, on Wednesday evening week, were most numerous circulated to secure a fashionable and distinguished company to meet the Lord Lieutenant, and resulted in the presence of several members of the nobility, the Lord Chancellor, and many of her Majesty's judges and law officers, public officials, professionals of all classes—in which those connected with scientific and artistic pursuits were predominant—together with a goodly gathering of the fair sex, the amplitude of whose crinoline proved somewhat inconvenient, both to the wearers themselves and the company in a too crowded suite of apartments. The pictures, which, by the way, from the cause just stated, it was difficult to inspect leisurely, are of average excellence this year, and were well displayed by the new gas-light arrangements; but it occurs to our mind that a less numerous and less miscellaneous assembly, with the opportunity afforded of eliciting opinions in a moderate discussion on the surrounding works of art, and on art generally, would prove both more entertaining and more instructive than was this meeting. A word, too, about the musical arrangements. There was ample material amongst the company for a much better entertainment in that regard, which, in fact, consisted only of an instrumental rendering of "The National Anthem"—in duet fashion, by an eminent pianiste, Mr. Conran, and an eminent violoncelliste, Herr Elsner—to greet his Excellency on entrance; and a fantasia by Mr. Levey, the talented leader of the Theatre Royal, as violiniste, accompanied by the pianiste named. The Lord Lieutenant recognized numerous friends amongst the company, and conversed therewith in his Excellency's usual courteous and affable style. The recently-elected academicians were introduced to his Excellency, who complimented them on their proficiency. The proceedings did not close till about twelve o'clock. We confess that the move is in the right direction, and too much credit cannot be given to the spirit of the intention, nor to the indefatigability of the secretary, Mr. M. A. Hayes, who must, at great personal labour, have matured it.

ROYAL IRISH ACADEMY.

A MEETING of this body was held on the 9th instant; the President in the chair.

The Rev. Dr. Reeves read a paper on the identification of the ancient church of Lann Beachaíre in Fingal. It appeared that St. Mologga, of Timoleague, who was commemorated in the Irish calendar on the 20th of January, was the individual who first brought bees to Ireland—or, in other words, the system of domesticating them by the use of hives. In commemoration of this fact, the church got the name which meant "The Church of the Beehive"—the name indicating the Welsh origin of the founder. This was the clue to the identification, which was long lost. The church was not far from Balbriggan, and there was an old burial ground near it. This interesting spot was connected with the introduction of Christianity into this part of Ireland.

Sir William Hamilton read a paper on "The new general method of inverting a linear and quaternion method of a quaternion."

Two interesting medals were presented by the Royal Academy of Science of Bavaria, and the Royal Society of Christiana, Norway. A stone ball and collar found in a limestone gravel-pit at Gore's-bridge, was presented by Mr. Hugh Blackney. A small cannon ball, found on the battle field of Aughrim, a number of old copper coins, &c., were presented by Mr. J. Murphy, of Lombard-street. A piece of modern sword blade, and a beautiful shaped flint arrow-head, and other articles of antiquarian interest, were handed in.

The thanks of the Academy were voted to the respective donors.

STAINED GLASS AT ST. PATRICK'S CATHEDRAL.

MESSRS. BARFF and Co. have been commissioned to fill in with stained glass the great south transept triplet window of this Cathedral. The subject selected by Mr. Guinness, the donor, is "the Ascension of our Lord." A full length figure of the Redeemer will occupy the upper part of the centre light, the Apostles, in groups filling the lower portions of the three lights; and those prophets who especially prophesied the coming of our Saviour are represented as seated in glory in the upper parts of the two side lights, contemplating the fulfilment of their prophecies. Hereafter, when the work is more advanced, we shall give further particulars.



THE NEW COLLEGE OF PHYSICIANS, KILDARE-STREET.

MR. WILLIAM G. MURRAY, ARCHITECT.

VIEW OF EXAMINATION HALL.

. For illustration of Exterior of College, see page 135.

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IRISH SOCIAL AND INDUSTRIAL STATISTICS—II.

OUR AGRICULTURE AND AGRICULTURISTS.

It is by casting our eyes backwards to periods not very remote in our history, that we will best estimate the real progress made in recent times in Ireland. How the small farmers lived but a century ago may be judged by an extract from evidence given at a trial held in Dublin in the year 1748.* A witness named Thomas Rolph, a butler to Lord Altham, living at Dunmain, in the county Wexford, having occasion to testify to the particulars of an interview he had with the family of one of his master's domestics, thus described the house in which they lived as "a hut or cabin, all in one room, without a glass window, and closed with a large bush, which was drawn in and out, and served for a door; there were no chairs or tables, and for a bed, stakes were driven into the floor enclosing a space in the corner where some bundles of straw were thrown together. In this slept, with Lord Altham's servant maid, her father, mother, and brother." This description of rural life elicited neither surprise or disgust from the court, the bar, or the audience, who listened to it. Such scenes were, doubtless, familiar to them, and when we recollect Wexford was then as now, one of our best counties, it is probable that yet more savage and repulsive spectacles might have been presented in that year, in some of our poorer counties, and among people from whom even a Lord Altham would hesitate to select an attendant. The mud cabins described by Mr. Rolph as of one room, numbered in 1841, 491,278. In '51, after a social revolution, perhaps without a parallel in history, the number of these edifices was found to have declined to 135,589, while the better class of houses had increased from 305,264 to 868,922. Pending the publication of the report of last year's census, we cannot fully estimate what further progress was made between '51 and '61. We, however, are happy to note, from the abstracts published by the Commissioners of their returns, that in proportion to population the number of the inhabited houses was by 7 per cent. larger in '61 than in '51. It is but too true a fearful waste of life, accompanied by an enormous emigration, contributed to the results obtained between '41 and '61. We must not, however, imagine that of our ancestors of a century ago catastrophes equally appalling were unknown. In 1789, '40, '41, and '42, like as in 1846 and '47, the potato crop failed totally year after year, and with like sad consequences to our unfortunate people. In "Wakefield's History of Ireland" we read that "thousands died from absolute want;" and in a pamphlet published in 1742, it is stated "the corpses were eaten by dogs on the road for want of people to bury them."

The increase, as we have shown in the quantity of land under cultivation between '47 and '61, amounts to over 650,000 acres, $\frac{1}{4}$ of which was tillage, and $\frac{3}{4}$ meadow land. This extension involved necessarily a proportionate increase in the demand for agricultural labourers, who, however, simultaneously declined in numbers from about 5 $\frac{1}{2}$ to 4 $\frac{1}{4}$ millions. Labour has consequently greatly risen in value. At the time of the Devon Commission, in 1843, it was proved that in many parts of Ireland men were to be had for 6d. a day (without food or clothing). In a Parliamentary paper published last year, from returns obtained through the constabulary, the average rate of wages for agricultural labourers is stated as ranging from 8s. to 9s. per week (without food or clothing) from '57 to '60.

Before the introduction of steam navigation our export trade in live cattle was small, some 7 or 8000 annually; our trade was, however, large in beef and pork—reaching to 80,000 barrels annually, in an average of twenty years. This trade is now all but extinct, but, under the improved mode of transit, our export of cattle, sheep, and pigs, have increased to an enormous extent. In 1847, we exported 199,952 oxen, 324,179 sheep, and 106,407 pigs; in '57, 344,583 oxen, 485,217 sheep, and 269,125 pigs; in '59, 833,657 oxen, 429,360 sheep, and 368,275 pigs—an increase in the national wealth, which may be estimated at ten millions sterling per annum, as compared with the time when sailing ships carried on the traffic, and at three millions per annum when compared with 1847. Since 1846 a remarkable change has taken place in our corn trade. From being one altogether of export, it has become, to a large extent, one also of import. Passing over the entirely exceptional year, 1847, when we imported over four millions of quarters of grain, against but 960,000 exported. We find in latter years that while we continue to export in quantities as large or nearly as large as those of twenty years ago, the imports are large enough to balance or more than balance the exports; thus, in 1856, we exported 2,212,061 quarters, while we imported 1,835,546. In '59 our exports were 1,691,378 quarters; our imports 1,905,705. In 1860 our imports were yet larger, 2,299,601 quarters, with a proportionate decline in the exports.

* James Annesley v. Lord Anglesea—without exception the most extraordinary and romantic case ever tried in an Irish court of justice. Sir Walter Scott, in his preface to "Guy Mannering," discloses that, on this "o'er true tale," that work of fiction is cleverly founded. Sir Walter cites a magazine of a recent date as the source of his information. Had he, instead of the imperfect abstract there presented to him, perused the full report of the trial, contained in the "London Magazine" of 1744, we venture to say the additional facts which he would have thus acquired would have yet further enhanced the interest every reader of "Guy Mannering" must feel in the hero and his story.

Two causes may be assigned for this remarkable change—the first is the decline in cultivation of cereals in Ireland, consequent upon the great extension in our growth of cattle. How far this cause operated we will attempt to elucidate. So far as our statistics extend, there appears a decline of about 400,000 acres in an average of years in the land devoted to cereals in Ireland, the yield of which may be set down at 1,700,000 quarters as the quantity of this particular crop, produced in excess of, say 1861, in 1845; but this quantity is not equal to the imports of '50, '60, or '61; and the fact remains, that a population now reduced to 5 $\frac{1}{2}$ millions, consume more corn than our former population of over 8 millions did twenty years ago, and it is therefore to the second cause—to the improved circumstances of our people, more than to the first—we have mentioned, we are to ascribe the great and pleasing change in our corn trade.

The diminution in our cereals has occurred, as we have already had occasion to refer to, simultaneously with a large increase in green crops, and flax so large as by more than 200,000 acres, exceed the quantity lost on the grain sections of tillage lands. Our farmers, in growing more turnips, &c., and less wheat, simply followed the rule of turning their lands to the most profitable accounts. In 1851 the average price of first class cattle at Ballinasloe fair was £10 10s.; in 1861, £21. In '51 the average price of wheat was 22s. 1d. per barrel; in '61, 80s. 2d. An advance of 100 per cent. in one commodity, and 35 per cent. only in the other. The influence of a different tendency in prices between '49 and '51, was no less decisively shown in the greater increase in the growth of cereals than in hay and green crops, which occurred in this period.

ON THE APPLICATION OF SILICATES OF ZINC AND ALUMINA FOR THE PRESERVATION OF STONE, AND FOR STEREOCHROMIC PAINTING.

In a recent article two processes, patented by Mr. Barff, of Dublin, for the preservation of stone, were described, and the various chemical combinations formed by silica, alumina, and zinc, as used in those processes, were explained. The method of their application is simple, requiring only care and accuracy in the proportions. It has been stated that if silicate of potash, and aluminate of potash, both in solutions of heavy specific gravity, say 1'300, and 1'250, be mixed, a gelatinous mass is immediately formed, because a decomposition has taken place; therefore, to give time for application, these solutions must be taken of a lighter gravity. Thus when silicate of potash, specific gravity 1'200, and aluminate of potash 1'150, are mixed together, in the proportion of three parts of silicate to one of aluminate, the solution remains liquid for 10 or 12 hours, and can be used for that time. If to one part of this mixture one part of water be added, a longer time will elapse before decomposition takes place. It is the alumina which causes the silica to gelatinize, because if the zincate of potash, i.e. (hydrocarbonate of zinc dissolved in caustic potash) is used without the aluminate, the silicious solution remains liquid until it has lost a greater part of its water, and then the result is not a gelatinous, but a pasty mass, which, on drying, becomes hard and compact. One part of zincate of potash, one of aluminate, and three of silicate, remains liquid longer than when the zincate is omitted; it forms a thinner solution, and penetrates deeper into the substance to which it is applied. The workman being supplied with the three liquids of the proper gravities, has then only to mix them in the proportions stated; but in doing this he must be careful to mix *first* the zincate and aluminate, and afterwards to add the silicate. The best method of application is by an ordinary brush, and under no circumstance should the materials be used for longer than the day on which they are mixed, because if decomposition has taken place, they will not penetrate the stone, but form on the surface a coating which, when dry, scales off. If the stone to be indurated is dense, the solution must be diluted with water; in all cases the repeated application of a weaker solution is better than one or two of a stronger. It is readily seen that penetration must be deeper, and contact with all the particles of the stone more perfect. The same directions for use are applicable to the induration and waterproofing of cements and stucco, terra cotta, &c. In all instances the object to be effected is the charging the substance to as great a depth as possible with the silicate of zinc and alumina. It is better, therefore, to saturate it with the weak solution, and when dry repeat the application till it will absorb no more. Care should be taken that no splashes or drops are allowed to remain on the windows, as when dry it is very difficult to remove them from glass. If the stone to be indurated is decayed on the surface, the soft parts should be removed with a hard brush; no further cleaning is required. Immediately after the work is completed the stone will be slightly darker than it was in its original state, but in time it bleaches out. This is owing to the fact that newly formed silicate of alumina and zinc is transparent, but in time it becomes semi-opaque, like opal glass. No further remarks need be made on the induration of stone, except that in all cases where perishable

stone is used, it is far better to prevent decay by using the solution at first, than to wait till disintegration has commenced. The cost of coating new work is less, because no cleaning is required, and the stone is less absorbent.

In this country, especially by the sea-side, it is customary to coat houses with lime and sand, and in some instances with Portland or Roman cement. When stucco work is fresh, it looks well, and much better than when painted with glossy oil colour. After some time, when it has become discoloured, for appearance's sake, as well as for protection, some sort of coating must be laid on, and paint is the one generally selected. The objections to paint are, that it requires frequent repetition, and that it can never look like anything else than paint. If, when a building has had sufficient time to dry after cementing, the coating be saturated in the same manner as described for stone, it will be made waterproof, and no repetition of the work will be required. At Killiney, Bray, and along the coast of Dublin Bay, handsome houses are being built, which must in time be in some way coloured; this could be prevented, and a more satisfactory result attained by the use of the silicates of zinc and alumina on the new work. In buildings which have been erected several years, and have become discoloured, an *opaque* coating is required; the method of application is somewhat different in detail from that used for stone, but is nearly the same in principle. In the first instance, the stucco should receive two coats of the silicious liquid, and after that, carbonate of lime tinted to the required colour, and mixed with the solution, should be laid on in the same manner as distemper colour. This adheres firmly when dry, and after receiving another coat of the clear solution, becomes so hard, that it is extremely difficult to remove it, and it also prevents the absorption of water. There are, however, other applications of the silicates of zinc and alumina which deserve notice. The harmony of colour in our modern buildings occupies the attention of architects, as well as a good arrangement of form—stones of different kinds, bricks of various colours, and ornamental tiles being largely used. Decorative painting, as in continental cities, has been used in many instances, and would be more extensively adopted if an enduring material could be discovered. In Munich, fresco paintings adorn the outside of many of the public buildings, but in climates such as our own, fresco will not resist the action of the damp frost and destructive gases. Even in Munich, some of those painted within the last thirty years are beginning to decay. Fresco painting is executed in wet plaster, a thin coat of old lime and sharp sand is spread on the wall, and the artist paints, using lime as white, so long as the plaster remains sufficiently damp to receive the colours. This generally continues for six or seven hours: after that time, no more can be done without danger of destroying the brilliancy of the picture. There can be no retouching; as the part painted is left, so must it remain. A large fresco is painted in pieces; the head of a figure one day, another portion the next, and so on till the whole is finished. Great skill and practice are required, and a long education is necessary in order to attain proficiency in this branch of art.

The failure of the fresco paintings, executed of late in London, has caused another method to be tried—namely, that adopted by Professor Kaulbach, of Munich, and discovered by the late Dr. Fuchs, the eminent chemist of the same city, describing the process. It will be well to show briefly why fresco painting will not resist the action of damp, &c. Lime and sand (mortar) form the ground, lime and colour are the materials used for painting the work; when finished it is nothing more than an ordinary stucco coating, ornamented with a painting. Its surface is subject to exactly the same influences, and has no more power to resist those influences than stucco. The painting does not preserve the ground and, therefore, the whole requires protection as much as the plastered walls of a house. Chemical unions may take place between the lime and sand, and some of the colours used, but these are accidental. Absorption is not stopped, and where the climate is wet this is an essential to durability. Dr. Fuchs' process, adopted by Professor Kaulbach at Berlin for the large monumental painting executed by him there, consists in the use of soluble silicate for the preparation of the ground of lime and sand as well as for fixing the colours after the painting is finished. He depends on the action of the carbonic acid in the air, also on the chemical action of the silicates on the lime and sand, for rendering the soluble silicate insoluble. For interior work, when the damp cannot affect the silicate, and time is allowed for its decomposition, this process, no doubt, will succeed; but for exterior, and even interior work in humid climates, it cannot be depended on. Again, there is a difficulty in the manipulation, not so great, it is true, as in fresco painting, and great care is necessary in applying the silicate to the finished picture lest the loose colours should be removed or run into one another. All the difficulties are removed by the use of the combined solution of the silicate of potash, zinc, and alumina. For Dr. Fuchs' process great care is required in the preparation of the ground. He says—"To produce a stereo-

chromic painting of great beauty and permanence upon a wall, it is chiefly necessary to look to the foundation of the picture, which consists of a lower and upper layer of mortar cement. Errors which are committed in these preparations, throw obstacles in the way of the painter, and injure the beauty of the painting. Where the combined solution is used, any ground of cement stone or stucco can be painted with colours, and as easily as with distemper or oil. Plaster of Paris grounds alone form the exception. Plaster of Paris is sulphate of lime; the potash in the solution unites with the sulphuric acid, and prevents its penetrating. The colours used must be such as will stand the action of potash. No organic colours, as lake, can be employed. Vermillion blackens in time, and therefore must be avoided. For reds and purples, the various shades of oxide of iron, known as colcothar, Indian red, &c.; also chrome red, for blues; ultramarine and cobalt for yellows; ochres and cadmium for greens; chrome green, cobalt green, and green ultramarine, for browns; raw and burnt sienna, raw and burnt umber; all mineral blacks, for white carbonate of lime or sulphate of baryta. The method of application is to coat the ground once or twice with the solution. The colours should be ground in water, and kept in a pastry-state for use; as much as is required is to be thinned with the same solution, it being used as water, as in ordinary water-colour paintings. When the work is finished and dry, two or three thin coats of silicate of potash should be brushed over it, and the whole becomes hard, resisting damp and other disintegrating influences. As in indurating stone, the solution must not be allowed to gelatinize; that of light gravity should be used, and it will remain fit for work for ten hours. One great objection to decorating our churches and public buildings with monumental or ornamental paintings, is the perishable nature of the materials hitherto in use. This difficulty is removed by the adoption of silicious painting, and it has been shown that it is as easily executed as that in oil or distemper. Artists, house-painters and decorators, have only to substitute for oil, turpentine and size, the solution of silicate of potash, zinc, and alumina. The exterior of houses and shops could be enriched with coloured ornament, which would improve the appearance of our streets; and as great advances are being made in street architecture in this city, it will not be long before stereochromy is adopted to enhance its beauty. Nature, in providing for man's happiness, has set an example in its beautiful and harmonious arrangement of colour. Why should not this be imitated in our streets and buildings? The glare of white pavements and white houses is painful to the eye, and fatigues the body; the dark monotony of dull brick houses depresses the spirits; a judicious use of colour is most desirable, and would add greatly to our enjoyment.

THE COUNTY SURVEYORS OF IRELAND.

ON the 27th ult., the bill before the Commons relative to this body was moved for second reading by Sir Robert Peel. Col. Herbert objected to a most mischievous clause therein, and said that "by the present bill the appointment of assistant surveyors was taken away from the grand juries, and given to the Lord Lieutenant." He hoped his right hon. friend would not persevere with his portion.

Sir Robert Peel thought it desirable that the examination of assistant surveyors should be conducted by the civil service examiners instead of by a local unpaid board. With regard to the appointments being vested in the Lord Lieutenant, he would consider the objection of his right hon. friend to make an alteration when the bill was in the committee. He hoped the house would, under these circumstances, allow the bill to be read a second time.

Lord Naas said that what was wanted was a road steward, who would stay out on the roads in bad weather, and see the stones laid down, and not a higher class of officer, to be called an assistant surveyor. He hoped the right hon. baronet would not attempt to alter the manner in which those persons were to be appointed.

Mr. Scully thought the debate on the second reading ought to be adjourned. He disapproved of the principle sought to be established by this bill, to take the nomination of assistant surveyors from the grand juries, and gave it to the Lord Lieutenant. He should, therefore, move that the debate be adjourned.

Mr. Whiteside said the bill would throw some 80 or 90 appointments into the hands of the Lord Lieutenant.

Sir Robert Peel said he was quite ready to withdraw that portion of the measure.

Mr. Scully then withdrew his motion, and the bill was read a second time.

SITES FOR PLACES OF WORSHIP.—A bill has been introduced into Parliament by Mr. M'Mahon, M.P., "to facilitate the obtaining of sites for places of worship. This will prove a very useful measure, and remove the impediments to the erection of churches presented by bigotry and other shortcomings.

NEW PALM HOUSE AT THE ROYAL DUBLIN SOCIETY'S BOTANIC GARDENS, GLASNEVIN.—We (*Farmers' Gazette*) had occasion to notice the erection of the new Palm House some time ago, and in order to see whether the structure would look better with the plants in it, visited the gardens this week. To our great surprise, we found that little apparent progress had been made during the last six or seven weeks. The great unwieldy monster, *superlative in its ugliness*, still looks like a mere skeleton of the work. Only a very small portion of the glazing has been done, and as the roof sashes are all double, it will take the glaziers another month at least to finish them, independent of the sides and front, which, at a rough guess, may be calculated at another month; that is, judging from the rate of progress they have made since they commenced to glaze. The gallery is yet to erect; the flooring and shelving for the giants are also yet wanting, and many other various details. In fact, it seems more than doubtful whether the season may not be too far advanced by the time the house is ready to enable the curator to get his plants into it this year. One thing, and only one, deserves our approbation—namely, the way in which the contractor for heating the structure has finished off his work, which we might have supposed would have been last. The apparatus, supplied by Mr. Weeks, of London, appears to be of the best kind, and likely to be powerful in its effect, when the building is ready to try it; and this will cause a further delay in removing the plants, for the apparatus should be well tried beforehand.

[Since the above appeared in the *Farmers' Gazette*, we have inquired into the matter, and inspected the building in question. Without being altogether disposed to take exception to our contemporary's remarks relative to the "ugliness" of the structure—which certainly, in an artistic point of view, cannot bear comparison with the previously existing range, designed and built by Mr. Richard Turner, and is not quite up to our idea of "a floral hall"—we must find fault with the manner the contractor's name is brought forward in some regards, evidently in ignorance of facts which might have been dispelled by a little inquiry. The particulars, as communicated to us, are as follows:—It seems that the Royal Dublin Society had only a certain sum in hand available for this work, and gave instructions to the Board of Public Works to prepare the necessary plans,* which the architect of that body accordingly did, and the design is said to have been so handsome and suitable, that if carried out, it would have contributed a fine feature to those beautiful gardens; but on estimating, being found to be over the amount available, the plans were discarded, and a much plainer structure substituted. Now this latter, from its character of construction—and considering the season of the year when frost, snow, rain, and storm materially impede all manner of building operations—was a work of uncommon difficulty—we will add, impracticability, were it not for the extreme care and skill employed in supervision—and the contractor informs us, that fully *two months* elapsed after his estimate was adopted before he was allowed to proceed. Additional precautions in the way of bracing, &c., to prevent the swaying of the structure—a very likely event—and other extra works, became necessary; and every reasonable time is always allowed for such. A great rubble masonry wall, 80 feet long and 60 feet high from ground-line to apex of the main roof over nave (and irrespective of twelve feet below) had to be built most cautiously in the worst of weather; so we think that, all circumstances considered, the conclusion should rather be in favour of the contractor than otherwise].

CARRICKFERGUS PIER.—The Municipal Commissioners of the Port of Carrickfergus have applied for a provisional order for works for improving the accommodation for shipping, by the construction of a pier or quay, giving a depth of five to seven feet at low water; and also for forming a breakwater on the west side of the harbour. The Commissioners have also sought for power to levy rates. The cost of the new works was estimated at £6,000. The promoters having duly complied with the provisions of the Act, and with the rules issued by this Board, my lords have made a provisional order for the purpose mentioned in the application of the Commissioners. There has been no opposition to this application.

The works for restoring Shakspeare's house at Stratford-on-Avon and converting the ground adjoining into a garden, which is intended to be open to the public, have been actively commenced, and it is expected that they will be completed in about a year.

* Here we must express a regret (without the slightest wish to reflect either on the ability or the worth of the officials of the establishment in question), that the Society could not have pursued an independent course in this as also in recent undertakings, and consult its *own* architect.

Notes of New Works.

The Dublin and Glasgow Steam Packet Company have commenced the erection of their new offices and goods' stores on the North Wall, adjoining the extensive saw-mills, &c., of Messrs. Martin. They have been designed by Mr. M'Curdy; Mr. S. Bolton, contractor.

The Ringsend Floating Docks have recently been dried, to allow of the foundations being built for the new corn stores, &c., in course of erection for Messrs. Perrin, adjoining those of Messrs. Pim. Same architect; Messrs. D. Crowe and Sons, contractors.

The female side of Kilmainham Gaol is to be remodelled and put on the separate system (see advertisement), according to the designs of Mr. M'Curdy, which have just received the approval of the Lord Lieutenant. The new wing recently added to this gaol by the same architect, is perhaps the largest in Europe, and forms a new feature in prison architecture.

The Ballast Board propose to erect a lighthouse, 60 feet high, on the Foze Rock, about 16 miles off Valencia, the most western point of European land. It is expected that about £70,000 will be granted by the Government. Mr. Barry Gibbons, C.E., has declared the project quite feasible.

The long-talked-of racquet court is at length to be erected in the park of Trinity College, which announcement will no doubt be hailed with pleasure by the majority of the students of Alma Mater. It has been a great source of surprise that such an institution should have so long remained without this great essential to the physical development of the rising generation who may there pursue their studies. Racquet playing must, in a great degree, tend to counteract the injurious effects of the sedentary and confined life to which the hard-working "houorman" must of necessity subject himself. For this reason alone—say nothing of having "within the walls" those means of recreation which may keep many a youth from the allurements of town-life—we consider this a step in the right direction. Mr. M'Curdy is the architect; Mr. J. Nolan, contractor.

A new dormitory (Early English) is to be erected at Columba College. Mr. M'Curdy, architect; Mr. Gahan, contractor.

NEW PATENTS.

List of Letters Patent which passed the Great Seal on the 22nd 27th, and 30th May, and 3rd and 6th June, 1862; Messrs. Byrne and Lambert, agents, 4, Lower Ormond-quay, Dublin:—

F. F. Dumarchy, for "Improvements in machines for crushing and pounding stones, ore, and other materials."

W. Rowan, for "Improvements in machines for hickling and scutching flax, and other vegetable fibres."

W. K. Latham and F. C. W. Latham, for "Certain improvements in machinery, or apparatus for perforating and numbering paper or other substances to be employed as 'tickets,' or where other 'counter registration' is required."

R. Kennedy and J. Armstrong, for "An improved arrangement of driving gear."

J. Knowelden, for "Improvements in pumps."

J. J. Gutknecht, for "Improvements in meters for measuring gas, water, and other fluids."

J. Marsh, for "An improvement or improvements in hames for horses and other draught animals."

H. G. Schramm, for "Improvements in rotatory engines and pumps."

V. L. Daguzan, for "Improvements in the method of paving roads and other places."

R. A. Brooman, for "Improvements in treating atmospheric air, and other elastic fluids, for motive-power purposes, and in engines and apparatuses to be employed therewith."

J. A. J. Redier, for "Some improvements in pocket watches."

IRISH PARLIAMENTARY BILLS.—The following is the position of the respective Irish Bills brought before Parliament:—Dublin and Meath Railway, received the Royal assent on 3d June. Dublin Cattle Market (changed from "Metropolitan (Dublin) Cattle Market"), third reading on 28th April last. Dublin (Borough) Fire Brigade, &c., third reading, June 8. Dundalk and Enniskillen Railway, second reading, May 12. Great Northern and Western (of Ireland) Railway, first reading May 7. Limerick Markets, received Royal assent June 8. Londonderry and Coleraine Railway, first reading May 21, Newcastle (County Down) Railway, second reading April 9. Newry and Armagh Railway, second reading May 12. Queenstown Improvement, received Royal assent June 8. Rathgar and Sallymount Improvement, changed to Rathmines and Rathgar Improvement, received Royal assent June 8. Tralee Savings' Bank, first reading May 30. Ulster and Banbridge, Lisburn, and Belfast Railways, second reading May 30. Waterford and Limerick, and Limerick and Ennis Railways, first reading May 20. Wexford Harbour Commission, second reading May 20.

Reviews.

The British Workman.

THIS publication, though decidedly sectarian in tendency, is utilitarian withal for the operative classes generally, as its title indicates. It circulates some wholesome advice and truisms, both in its selections and original articles—entertaining anecdote forming a principal element. Admirers of the poetic muse, moreover, will find therein much material to minister to their pleasure. The woodcuts are very beautifully handled and numerous, and the general style of production worthy of a more substantial return per copy than *one penny*, the quoted price.

The Children's Friend.

ALMOST the same remarks as those with reference to the above, apply to this serial, except that it directs itself to the *juvenile* portion of the community, and forms a most pleasing and instructive companion for them. We cordially recommend it to our adult readers for their little people.

Twice a Week.

THIS is truly the age of cheap publications, when we have eight pages of letter-press, with—for pictorial subjects—tolerably executed woodcuts by special artists, sensation stories, and a host of information on things in general for *one halfpenny*. This new bi-weekly candidate for support bids fair to rival in success some of its established contemporaries of kindred character. The opening ceremonial of the Exhibition forms a subject for double page engraving in Part 1—commenced simultaneously with that event—and is a truthful representation, from a photograph by the London Stereoscopic Company.

Miscellaneous.

TRAINING OF YOUTH.—For good or ill “the child is father to the man.” The habits, tastes and feelings, whether good or bad, acquired in childhood, generally remain unchanged through life, growing with our growth and strengthening with our strength; shall we then be surprised that the wretched boy who has received no care or instruction from childhood, who from his cradle has breathed an atmosphere of vice, should pass his youth in crime and excess, and end his days in the penitentiary or on the scaffold. Thus it happens that those whom society ignores and neglects as children become in their after life the “whips and scourges” to plague her for her unnatural and short-sighted policy. When the hill-tops and the fields around us are ablaze with sunshine, who thinks of the low-lying valleys whose cheerless depths remain unvisited by one single ray of the blessed health-giving light! And thus, while the privileged few are in the enjoyment of all the advantages of an improved system of education, and of all the appliances and aids to mental culture and physical comfort, which modern science has placed within their reach, we have little thoughts for the crowds of our fellow-citizens, who in the language of one who speaks from his own bitter experience.—“Sit in gloom while sunshine floods the land, and feel through darkness for the hand of help.”

THE NATIONAL BANK OF IRELAND.—In the year 1857 the paid-up capital of this Bank was augmented, out of the accumulated profits, from £450,000 to £500,000, since which period the dividends have been declared rateably on the larger sum, the rest or unappropriated profits then amounted to £70,000;—every succeeding year adding to its amount until it reached £254,000; of this amount £100,000 has been apportioned among the shareholders, by the further augmentation of the paid-up shares from £25 to £30 per share, thereby raising the amount of the paid-up capital to £600,000, a dividend at the rate of eight per cent. per annum, and a bonus of 15s. per share, amounting together to £35,000, were paid in February last, so that this bank has been enabled, within the period of five years, to present to its shareholders a bonus of £150,000 which has been added to their capital, and on which they will, in future years, receive the dividends. The total profit for the past year amounted to £122,119, equal to 2½ per cent. per annum: at the division in August next, the directors propose to pay eight per cent. per annum, and 16s. per share on the £30 shares for the half year, free of income tax, still leaving nearly £100,000 of realised profit as a reserve fund. The increase in the market value of the shares has kept pace with the increase of the Bank prosperity; they are now quoted, in a rising market at 74-76; a price by no means equal to their real value. The National Bank has most beneficially retained a large reserve for capitalization, which has not only added to its usefulness, but has increased the security of its note-holders and customers, and on these grounds alone its course is well worthy the imitation of all Joint Stock Banks.”—*The Money Market Review.*

CHROMO LITHOGRAPHY.—Two painted lithograph pictures, “On Guard,” and “On Duty,” executed by W. M. Morison, and published by Stark, Brothers, Sackville-street, deserve the most favourable notice as specimens of chromo-lithography, a species of engraving that bears a strong resemblance to water-colour pictures. “On Guard,” does not represent a military sentinel, but an earnest, rough-coated, dark-browed, bright-eyed little terrier, sitting outside of his tub, like Diogenes in the sun; before him is a well-picked bone, and near him a vessel filled with water, to which he repairs like a stardy teetotaler, to quench his thirst after his frugal repast. The man at the wheel watching the compass in a storm, or the captain on his accustomed promenade upon the deck of his vessel, is not more wide awake or more intent upon the due discharge of his duty than this honest little terrier. His sense of responsibility imparts to his face a solemnity that is really ludicrous. As a picture the composition is attractive, and as a specimen of art deserving of praise. The companion picture, “On Duty,” delineates a dog of another class—the sentinel of a stable—his paw upon a dead rat which, in the discharge of his duty, he has rendered incapable of depriving his master’s horses of their corn. We prefer the terrier—his firmness of purpose and honesty of nature attach him at once to us; he is a sterling little fellow, not to be approached with impunity.

THE JAPANESE AT HOME.—To every one who has seen or heard of our adventurous Asiatic visitors, the question will naturally occur, “What will they think of their own countrymen when they get back again, on comparing the state of things Japanese with what they have witnessed in Europe? How will they, at first, reconcile themselves to the absence of railways, gas, telegraphs, postage stamps, carriages and operatic spectacles? What impression are they likely themselves to receive, on returning to give an account of their mission to the authorities who sent them hither?” For experience teaches the traveller that not until he revisits his native land can he fully appreciate what he has seen elsewhere in relation to what he left at home. The Dutchman has no idea how wonderfully flat Holland is until he takes his rest, after a tour in Switzerland, in his own country-house on the bank of a currentless canal. The varied beauties of landscape scenery are never so thoroughly felt as after the monotony of a long sea voyage. How heartily do Arctic discoverers enjoy the luxurious influence of a temperate climate! How couriers who have been posting night after night, revel in the comfort of a pair of sheets in an unjolted sleeping-place! The rustic who returns to his village after a first visit to London town, never before knew how small was that village; how noiseless, grass-grown, and thinly populated. And it is likely that the Japanese ambassadors, until they set foot once more in Japan, will hardly suspect what a singular place is Japan, and what a singular people are the Japanese.

EXPLOSIONS.—Two explosions occurred on the 26th ult., at the Patent Spinning Mill and Cordage Factory of Messrs. Wallis and Pollock, Cork. Four men were injured. On investigation it appeared that the first explosion was occasioned by the bursting of the engine boiler, both ends being completely blown away; and the second explosion was that of the gas-holder which had been fully charged, as the proprietors manufactured gas on the premises for the lighting of the concerns. The premises, machinery and goods, are fully insured in the Liverpool and London Fire Assurance Company.

THE CRAMPTON MEMORIAL.—Mr. Joseph Kirk, R.H.A., the sculptor entrusted with this work, writes from London (where he has been making arrangements) to say that the bronze castings are completed, and will be ready to send over immediately. The whole trophy is put together, as it will be when erected in its place, and the sculptor very much pleased with the effect; the casting being admirable, quite sharp and clean, infinitely superior to the castings for the Wellington Monument, although done at the same foundry. Both the modelling and casting of the bronze fountain have cost much more than a statue nine feet high would have done; Moore’s, for instance, which, with its pedestal, cost £1,400; but the sculptor hopes that it will be a monument to himself as well as to Sir Philip Crampton, and does not complain.

CARLINGFORD LOUGH.—The Newry Navigation Company have applied for a provisional order under the Pier and Harbour Act, for the construction of works for improving and extending the navigation from Carlingford Lough at Warrenpoint to Newry, and thence to Lough Neagh, by cutting a channel through the bar. Also for power to levy rates. The cost not to exceed £100,000. This application was opposed by ship-owners, traders, and others connected with the locality, and the application was withdrawn by the promoters.

The Report of the Iron-plate Committee is now in the hands of the Duke of Somerset, but it has been decided that for the present it shall be kept secret.

Mr. Woolner has been selected to execute the statue of Lord Macaulay, which is to be placed in the library of Trinity College, Cambridge.

CHURCH OF ST. JOHN THE EVANGELIST, ARDAMINE.—The *Wexford Independent*, in announcing lately the consecration of this building, thus describes it:—

This church is situated close to the sea near Courtown Harbour. It was partly designed as a memorial to the late Mr. and Mrs. Richards, of Ardamine, and is built just adjoining the old burial ground, and the ancient mound known as the Moate of Ardamine. It is in the Early English style, from the plans of Mr. G. E. Street, and the work was superintended by Mr. John Kelly, of Gorey. It is calculated to hold about one hundred persons, being fitted with open and moveable benches. The rubble masonry is formed of the limestone found at Courtown Harbour, and is left rough and unplastered inside exactly the same as outside. The dressings are of stone from the quarry Knock-a-vacca, near the Harrow, of the same bed as supplied the builders of Ferns Castle and Abbey with their cutstone work. The chancel arch and other arches are relieved with red brick, and there are also courses of red brick outside and in, relieving the spaces of masonry. The roof is open and of high pitch. The whole church is paved with Godwin's encaustic tiles—the central passage and chancel in patterns—the remainder plain. The east end of the chancel, which contains four glass memorial windows, is semicircular, and in the jambs of the end windows are polished shafts of different coloured Irish marbles, with capitals carved in Portland stone. Three of these windows are to the memory of the late Mr. and Mrs. Richards, of Ardamine, and the late Mrs. Richards, of Ounavarra; and there is another stained glass window near the font, in memory of Lieutenant Charles Wynne, R.E., who died during the late Indian campaign at Lucknow. The font, which is opposite the entrance porch, and the pulpit, are carved in Caen stone. The font was the gift of the late Rev. Philip Walter Doyne, and now bears an inscription in brass to his memory. Externally two most remarkable features are the bell turret, which is supported by a buttress pier on the western gable next the road, and the porch, which is solid arched and roofed with Knock-a-vacca stone.

DUBLIN FIRE BRIGADE.—At the eleventh hour, when this bill came on for hearing before a Parliamentary Select Committee, the opposition that had been previously organized and their intentions paraded with great display, was found to be *non est*. The bill has been referred back to Standing Orders' Committee.

THE RAILWAY OF THE SEA.—It may have been all well for Lord Byron, who lived before steamers and screws, when in a good cutter yacht, with all her white sails set, and with the swelling wave beneath him, to write of his being on the dark blue waters of the Mediterranean, and of the waves of his boat bounding beneath him like a steed that knows its rider. There is, for I have enjoyed it, perhaps, no more delightful sensation than to feel the little vessel, like a well-bridled steed, at your bidding wheel her head to meet the coming wave, so that not a bubble of spray is raised; and, rising over its crest, again fall off. She dips down its slope to rise and meet again and again each succeeding wave, with all the beauty and grace of a swan upon the water, and with a motion as smooth and undulating as that of a gondola, the sea appearing to nurse her on its bosom like a petted child. But, alas! screw steamers and post-office requirements have changed all this. Look at the steamer's sailing chart. A horrid straight line from place to place marks her course—the railway of the sea. From point to point it stretches, regardless of the wind, or waves, or weather. Sea and steamer are not friendly together, like yacht and waves. The steamer says to the sea, "I want to go to such a place; and I will go and no thanks to you;" and the sea says, "If you do, you'll catch it." In this temper between the two, the voyage begins; and, as in our unhappy case, the squabble continued for nearly the whole five days.—*Dr. Corrigan*.

THE SCARCITY OF PAPER IN SPAIN.—Few have any idea of the difficulty there is in procuring a regular supply of paper in Spain, the import of foreign paper being virtually prohibited. One newspaper has been compelled temporarily to suspend its publication, another has been obliged to be printed on coloured paper. At the beginning of summer some paper mills are stopped by want of water, and during winter the bad state of the roads prevents supplies from being regular. Hence it arises that voluminous works are rarely found in Spain to be printed on paper of the same quality from the beginning to the end. A bill has been presented to the Chambers to open the frontier to foreign paper which is better and costs much less, and a committee, presided over by Gonzalez Bravo, has been appointed to consider the matter. It has just held its first sitting, to which several manufacturers, directors of journals, writers, and publishers were summoned. Free traders and protectionists discussed the question for three hours—the former having an eminent advantage. Senor Ceolo, to the astonishment of all present, proposed as a *mezzo termine*, that foreign paper should pay an *ad valorem* duty of 10 per cent, instead of the present rate of 12 per cent. on the weight, equivalent to an *ad valorem* duty of 24 per cent. Nothing has yet been decided.

AN ARISTOCRATIC FEMALE SCULPTOR.—In the Great Exhibition (North Court, Central Division) is the statue of a large dog—sculptured by the lady of Henry Heathcote, Esq. (brother of Lord Aveland, of North Luffenham, Rutland), which has already attracted groups of admirers. The animal is represented as lying down, with its fore legs extended and its head erect, the pose altogether being very natural. It is the statue of a favourite living dog in Mrs. Heathcote's possession, and is a very spirited and highly successful production from the fair sculptor's atelier, which, we believe, was on the premises of Mr. Blashfield, of Stamford, amongst whose beautiful terra cotta goods the statue in question has found a *locale* in the exhibition.

Votes of £500 for the Royal Irish Academy, and £2,750 for the National Gallery of Ireland, has been agreed to by the Commons.

Alderman Atkinson (ex Lord Mayor) has subscribed £5 to the Edmund Burke statue fund.

Howard is busy in arranging for the building of his new Theatre in Nicholson-street, Edinburgh, on the ground on which the present circus now stands. It is calculated to contain from two to three thousand people, accommodation for the million being particularly attended to. Almost in the immediate neighbourhood, the present lessee of the Alhambra is erecting a new and splendid establishment for the performance of light pieces, ballets, and concerts.

THE CARLISLE BRIDGE DESIGNS.

Sir—I perceive by your Journal that various designs have been sent in for Carlisle Bridge. Allow me to refer you to the instructions of the Committee in their circular of the 13th March, 1862.

"In advertising for plans the Committee have carefully avoided any observations that could be construed to bind the Engineers to any specific plan for the erection of this important work; they have merely decided that the new bridge shall be as level as possible; that it shall be the whole breadth of Sackville-street; that it shall be built on stone abutments, with iron carriage way and superstructure, and making provision for statuary, to do honor to illustrious men."

By these it appears to me that *any other* superstructure than *an iron* must be excluded from a premium. If such design be *best*, it may be *adopted*, but must, clearly, be excluded from any of the *three premiums* to be given for a bridge with "stone abutments and an iron superstructure." I have not seen the plans exhibited.

Limerick.

JUSTITIA.

[Our detailed account of the features, and other particulars, of these designs although ready in type, is unavoidably postponed, for want of space, till next Number.—Ed.]

THE OMAGH GAOL TENDERS.

Sir—I see in your last number a report of the amount of the tenders for improvements at Omagh Gaol, and as there seems to be some misunderstanding as to the facts of the case, might I ask you to obtain the following information through your correspondent, viz., if one of the competitors put in a tender for £1,000 odd, and having been declared contractor at that sum, was allowed to amend his tender, and after ascertaining the amount of the other tenders, produced a detailed estimate, showing a mistake in addition or calculation. I am sure the gentlemen concerned would not do anything wrong to their knowledge; but, under the circumstances, it would be most useful to parties tendering for public works to know what is really the proper course in such matters. A COUNTRY BUILDER.

NOTICES.

Payments (by Post-office Orders, Cheques, &c.) for Advertisements and Subscriptions to this Journal, are to be made to the Publisher, Mr. PETER ROE, 42, Mabbot-street, who will promptly acknowledge same.

The attention of Manufacturers, Machinists, Civil and Mechanical Engineers, Patentees of Inventions applicable to Architectural, Engineering, Building and Sanitary purposes, &c., &c., is earnestly directed to "THE DUBLIN BUILDER," as a most desirable medium for Advertising, commanding, as it does, an extensive circulation amongst the classes for whom such announcements are more particularly intended.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MABBOT-STREET." All other Communications should be addressed to the Editor, 17, LOWER GARDINER-STREET.

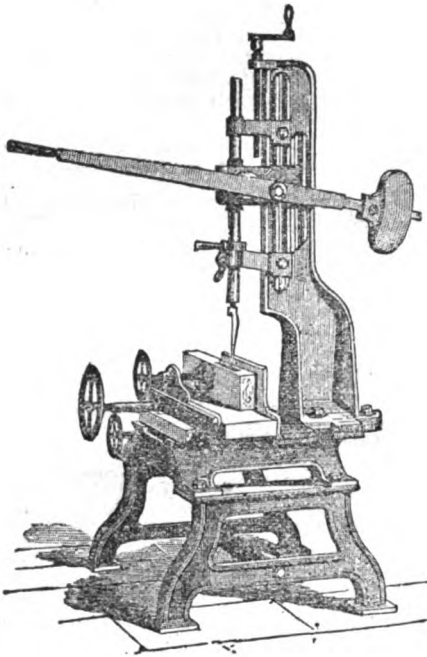
ERRATUM.

In page 131, col. 1, line 21 from top, for "mediocrity" read "minority."

TO ADVERTISERS.—A letter for "A. X. Draughtsman," who advertised in last Number, lies at this office.

GALLON AND BEAN, LEEDS,

Cut & Wrought Nail Manufacturers, & Hardware Merchants,



RESPECTFULLY request all BUILDERS, CONTRACTORS, CARPENTERS, &c., requiring Mortising Machines, previous to purchasing, to examine and test their *patent combined Crank and Lever Machine*, which will Mortise (Tenon and Bore, if required) both Hard and Soft Wood, and is also adapted for Drilling and Punching Iron.

The superiority of this Machine over all others consists in the substitution of a solid wrought-iron plate Crank or Eccentric, by which greater power is obtained, in place of cast-metal Rack and Pinion Wheel, the Teeth or Cogs in which are so liable to strip or break out—in the direct and perpendicular action of the Lever and Crank on the Cutting Tool, and consequent diminution of friction—in being stronger and less complicated in its construction, and more powerful in its motion—in the facility of its adaptation to the various depths of material—and in its non-liability to break or get out of working order.

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N.B.—The Patentees respectfully intimate that this Patent extends to, and comprises Machines for Mortising by Steam and other motive power, as well as by hand; and makers and vendors of or parties buying or using Mortising Machines are cautioned against any infringement, as the patent right will be strictly maintained.

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Also a large assortment of Vases and Fountains.

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DAVID McCULLOCH, Agent.

P.S.—I desire to call special attention to the *Enamelled Fire Clay Retorts*.

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ratus.

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and Floor Girders.

T. and G. beg to refer, as specimens of *their work*,
to the Iron Conservatories, Heating, &c., as erected
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ings, Malconics, Buckets, Staircase Ballusters, &c.,
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quality. MAURICE BROOKS, Sackville-place, Dublin.

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KENNY'S PATENT.

The undersigned beg to call the attention of En-
gineers and the Public to the above description of
Opening Bridge, as now being constructed for the
entrance to the St. George's Dock, Custom-house
Quay, Dublin, for the Board of Works, which will be
found superior to the ordinary Swivel Bridge, both
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CAUTION TO ARCHITECTS AND

BUILDERS.—In consequence of complaints
arising from the substitution of INFERIOR and
SPURIOUS ARTICLES instead of

SMITH'S PATENT DOUBLE-ACTION DOOR SPRINGS;
SMITH'S PATENT WEATHER-TIGHT WATER BAR; and
SMITH'S PATENT WEATHER-TIGHT CASEMENT FAST-
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the above are most respectfully requested to observe
that all GENUINE ARTICLES are stamped with the
NAME AND ADDRESS, SMITH, Patentee, 69, Prince-
street, Leicester-square, London, and SUCH ONLY
are WARRANTED.

The Dublin Builder.

VOL. IV.—No. 61.

THE ARCHITECTURAL CONFERENCE IN LONDON.

ON to-morrow, the 2nd instant, a morning meeting of architects—including delegates from the Institute of Scotland, and the Associations of London, Birmingham, Liverpool, Glasgow, Manchester, and the Northern Architectural Association—is convened to be held at the Conduit-street Rooms, London, and in the evening afterwards it is proposed that the *entente cordiale* should be confirmed with a jovial discussion of edibles and potables. We are disposed to augur that some good may come of this meeting—something more than mere expression of feeling as to grievances, the anomalous state of architectural practice, &c.—but are much disappointed to find that in a cause so nationally important the Institute of British Architects should seem to hold aloof. Why this is we cannot say, but that it *should* be, we feel convinced that any misgivings will not justify; as the members of the profession throughout the kingdom must naturally expect that in every movement for “the universal good,” the parent institute should rather lead the way than tarry in the rear. But it remains to be seen how far the Institute will endorse the decisions arrived at—if decisions there be—and how far hereafter it may be disposed to take practical action in the matter. The promoter of this movement (Mr. J. B. Pritchett, of Darlington, architect) sought for an “Institute,” an “Association,” a “Society,” or any “constituted body” in Ireland to send a delegate, but *non est inuentus* is the return to his inquiry, and shame on our architects that it is so.

In Dublin there are—including public officials—about 40 qualified practitioners (irrespective of others hardly to be recognised), in Belfast 6, in Cork 4, in Derry 2, in Limerick 2, and in all other cities and towns in Ireland, as nearly as we can collect (the above included) about 12 members of the profession (mostly county surveyors, practising also as architects) making a total of some *three score and six*. Yet these gentlemen are satisfied to know that delegates from the various architectural associations in the kingdom are to attend this meeting, and that Dublin, Belfast, Cork, Derry, Limerick, and Ireland totally, *may* be unrepresented thereat. Shall it be so is a question we now come to discuss? Can no Dublin architect spare two or three days from his duties? Are the provincial brethren similarly circumstanced? Is individual interest to predominate over the general, and the opportunity to be lost? It need not, it *must* not be so, if humble aid be acceptable. The conductor and originator of this journal—which ever *has* and ever *will* devote itself to the interests of the architectural profession in Ireland—burning with shame for the stigma that will be necessarily imposed on the body, collectively and individually, should it be unrepresented in a congress such as this, awaits, at the moment of writing, an expression of the general sense of the profession—in answer to a circular addressed to each member, as to whether or not *HE* (in the absence of a better) should proceed to London as a delegate—and, if it be encouraging, he shall have accepted the invitation before this journal is in the hands of its country readers. Should it prove otherwise, the profession will, at least, bear in mind, that a voice was raised in time, that the method of obviating the difficulty and the disgrace was suggested, and take their own share of the responsibility. Why did not the honorary secretary of the late Institute of Architects in Ireland, on the public announcement of the conference being known, summon a special meeting of the *then* council, office-bearers, and members, and take a vote upon the propriety of sending a delegate of *their own* selection, and of paying his reasonable travelling expenses out of the funds (*exceeding one hundred pounds*) which still remain lodged in bank to the credit of that institute, and in the joint names of the respected treasurer, Mr. Murray, and the honorary secretaries, Messrs. J. H. Owen and Parke Neville? Surely this would have been a tangible course, and a fitting appropriation of a portion of the fund in question, which the trustees must feel very uncomfortable in having so circumstanced?

How long will it remain *thus*? Year after year is passing over, still the money lies idle. The interest, we presume, also is accumulating, and no effectual steps are being taken to reorganize the institute, and turn it and the principal to account. Better, if the institute be *dead* to all intents and purposes, that, at least, the assets should be disposed of for some charitable purpose. If for none other, it would prove most acceptable at present to the starving poor in the West of Ireland!

WILL A WIDER CARLISLE BRIDGE PROVE EFFECTUAL FOR THE TRAFFIC?

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—You have very properly taken much interest in the project to erect a new bridge, and of much greater width, on the site of the existing Carlisle Bridge; but I must avow that I have no faith—even assuming it to be completed as intended—in its *effectually* removing the objections at present so palpable.

The main cause of the bridge being blocked by vehicles is not so much its insufficient width as the arrangement of the thoroughfares adjoining, and to and from which constant streams radiate, and in *opposite* directions, which a wider bridge will certainly *relieve*, but never totally *obviate*, so as to secure uninterrupted traffic. Widen the bridge as much as you please, the same impediments to the vehicles crossing it or *turning from* it down the quays will *always* be presented by those travelling *along* the quays, say from the Custom-house to Bachelor's walk at one side, and from Burgh-quay to Aston's-quay at the other. I am much more in favour of leaving Carlisle-bridge *as it is*, and erecting a new bridge opposite Beresford-place, over which a large proportion of the traffic from the north side would pass to the south, and *vice versa*, both relieving Carlisle-bridge—which would then be quite suitable for its work—and giving a distinct new thoroughfare to the increased convenience of the public. By this arrangement the Amiens-street and Westland-row termini would be within *five minutes* walking distance of each other, the round *via* Carlisle-bridge saved, and “the occupation” of the antiquated ferryman, like Chiron on the Styx, “gone.”

A RATEPAYER.

LAYING THE FOUNDATION STONE OF THE NEW COLLEGE OF PHYSICIANS.

WE understand that the Lord Lieutenant has consented to perform this ceremony on Monday, the 7th instant, at four o'clock, and that a numerous circle is invited to meet his Excellency on the occasion. The works have been in progress for some weeks, but the cornerstone was not interfered with, a circumstance having numerous precedents. It may be well here to add, for those who may desire to obtain them, that views of the exterior and interior of this structure appeared in the DUBLIN BUILDER for June 1st and 15th, respectively.

LONDON SEWAGE.—The most recent analyses of London sewage are, perhaps, those made by Dr. Letheby for the city of London. Taking the average of Dr. Letheby's analyses,* I find that the total amount of solid matter of sewage taken from various main sewers is 94 grains during the day, and 79 grains during the night, giving an average for the whole day and night of 86 grains of dry matter in the imperial gallon; but on putting together 24 of these analyses—25 were made altogether, but I reject one because there was an enormously large quantity of solid matter in it—taking 24 normal analyses of Dr. Letheby, and grouping them so as to place in *one* class all the analyses which gave less than 86 grains, and in the other class all that gave more than 86, I found that 15 analyses yielded less than 86 grains, and furnished on an average only 66 grains of solid matter in the imperial gallon, while nine samples yielded more than 86 grains, giving on an average 123 grains per imperial gallon of solid matter. Now, considering the character of the larger quantity of the matter which occasionally finds its way into the sewage of towns, and noticing that it is especially larger on rainy days, and is due mainly to the washing of the streets, and bearing in mind that this excess of solid matter, which now and then is found in London sewage and in the sewage of all towns, principally consists of useless earthy and suspended organic matter, in fact the sweepings of the streets, I think we obtain a wrong idea of the concentration of the sewage of towns by striking an average in which we incorporate all the analyses of the samples of sewage that have been made throughout a certain period of the year. We ought in all fairness to reject these abnormally large quantities of matter, and we should then arrive at a better idea of the average quantity of solid matter of a fertilizing character; for it is this that we must keep principally before our eyes. I think we should then find that the average proportion of solid matter which is given by Dr. Hoffman and Mr. Wilt as high as 102 grains in the imperial gallon is too high, and that 70 grains of solid matter, principally excrementitious, is nearer the average than any higher number. It would appear, even from the actual analysis on which the objections I have just made are founded, that we have as the actual average a quantity scarcely coming up, taking the mean to 90 grains, or an average giving as the exact quantity 86 grains. I believe, however, that 70 grains, speaking in round numbers, or 1 part in 1,000, would give a fairer idea of the amount of solid matter in London sewage.

* Professor Voelcker at Royal Agricultural Society of England Meeting.

LABOURERS' COTTAGES, AND THEIR BEARING UPON ARCHITECTURE.

ON Tuesday, 3rd ult., a lecture was delivered in the theatre of South Kensington Museum, before the members and friends of the Architectural Museum, by the Rev. Thomas James, M.A., "On Labourers' Cottages and their bearing upon Architecture." The chair was occupied by the President of the Architectural Museum, Mr. A. J. B. Beresford-Hope, who briefly introduced the lecturer.

The Rev. Lecturer said:—The Lodging of our working classes in London and in the great cities is indeed a pressing question, but it is one still more removed from the sphere of art into that of social science, than the one which I have adopted; and so long as our wealthy Londoners care to remain contented with such high art as the 3-windowed houses of Harley-street and its compeers afford, it would indeed be preposterous to think of applying any sense of the term architecture to the building destined for workmen and artisans. It is some hope, perhaps, for the miserably degraded condition of the domestic street architecture of London, that the best recent examples of urban building have been in city warehouses and St. Giles' Schools. Beginning at this end, it may surely in time force its way upwards, and shame our middle and higher classes, with their two or ten thousand a year, from burying themselves in the dingy walls of pointed brick, broken only by those statuable openings for limited light—which can only be explained to the intelligent foreigners, now so thickly congregating among us, as the nation's grateful memorial and perpetual tribute to the memory of the deceased Window Tax.

But while the difficulty of attaining good street architecture seems, judging from its rarity, almost insuperable, everybody supposes that he could build a cottage. Just as everyone thinks he can write for the poor, so everyone thinks he can build for the poor: so little is required—so few the wants. You have only to take pen and pencil in hand, and the thing is done! But, indeed, the poor man's authors, after his Bible, are but three or four, and they are of the very best; and of the thousand cottage plans that have been designed for the country labourer, there are scarcely more than three or four which he really likes, or would care to live in. It is notorious that the old mud hovels of the waste, the concretion of many generations, have far more comforts and charms for the peasant than most of the new spick and span new model cottages, premiated at the last agricultural show.

It would be waste of time, yet almost amusing, to run over the marvellous mistakes which have been made in prize cottages, even by our leading societies. Some of the very worst models which I know have been ushered into the world as model designs. Some without any pantry—one with an ornamental verandah over the scullery—another with separate chimney shaft to nearly every grate—another with classical pediment to the gable, and Gothic moulded battlements to the gable. I pass over the outrageous bargeboards and extravagant hipknots and other absurdities, added with the idea of giving an architectural character, and some quite impracticable; and I must own myself to a share in one which appeared in a leading review, in which the only way upstairs was apparently through the window.

Till within the last twenty years very little thought was given to cottage-building. Even improving landlords had little notion except of making them picturesque. The Lady Bountifuls, fresh from the side scenes of a London opera, tacked on, by the aid of the village carpenter, barge boards and rough bark, put sham latches on the front doors, which were nailed up to make all look neat and tidy, and then believed that they had effected a Swiss cottage, and a creditable improvement. But this was all in reference to themselves, and not to the occupiers, who were often put to great inconvenience for the sake of this outside show. Even when the best motives actuated the proprietors, there was a lamentable want of proper adaptation to the end proposed; and I scarcely know an instance where extensive cottage-building was effected, five-and-twenty years ago, where there are not evidences in pseudo-Gothic, and classic accessories, of an unreality about the work, and, at best, but a feeling after an object which was not attained. The late Duke of Bedford was one of the first who systematically set to work in a practical spirit to solve the problem how a substantial and convenient house could be erected for the labourer, at a cost which would pay a reasonable interest on the outlay. He took the broad and liberal view which became a man who recognized the principle, that property has its duties as well as its rights. "Cottage-building," he says "is, we all know, a bad investment of money, but this is not the light in which such a subject should be viewed by landlords, from whom it is surely not too much to expect that while they are building and improving farmhouses, homesteads, and cattle-sheds, they will also build and improve the dwellings of their labourers, in sufficient number to meet the improved and improving condition of the land."

His example was very widely and quickly followed; and indeed there were many other landlords, of greater or less acreage, doing the same good work independently, at the same time; but the Duke of Bedford will always stand out conspicuous in the movement, from the personal attention he himself bestowed upon the details of the plans, and from the book of designs that he published.

These are still among the very best before the public, and greatly to be preferred to the majority of those put out by professional architects. They range from a single cottage to groups of five or more; meeting almost every conceivable requirement of numbers and condition of families. They are thoroughly unpretentious in character, and they are cheap. The great agricultural societies, especially the Royal Agricultural Society, and the Yorkshire Agricultural Society, took up the subject of cottages about the same time, offered prizes for the best designs, and published the results. But by far the greatest share in promoting the cause of Cottage Improvement, and providing a large variety of commodious and inexpensive plans, must be assigned to the "Society for Improving the Condition of the Labouring Classes" (which has its office at Exeter Hall, and its publication, "The Labourer's Friend") and more especially to the late honorary architect of that Society, Mr. Roberts, who, at home and abroad, in town and country, has done more than any individual, and I may say, any body of men, to disseminate reliable statistics and information about the dwellings of the labouring classes, and to carry out practical measures for their improvement. His pamphlets and lectures are generally too well known to require me to specify more than one, the last, just published by Ridgway, and entitled "Essentials of a Healthy Dwelling." I might have been charged with direct plagiarism, if I had seen his pamphlet more than a week ago, for it contains a design almost identical in general ground-plan with the one which I exhibit; but my own has been in the course of modification for the last two years, though no doubt indebted to some of Mr. Roberts' earlier plans for many features of its arrangement.

The one before you was, however, more directly modified from a ground-plan given in Mr. Strickland's most valuable pamphlet on "Cottage Architecture," being an examination of the best designs sent in to the Yorkshire Agricultural Society in 1859.

I could not have greater confirmations of the excellence of this plan than the facts, that almost the identical arrangement has been sanctioned by Mr. Roberts, in his latest publication, as the best which his matured experience can recommend; that so practical a man as Mr. Strickland adopts the same; and that the latest prizes awarded by the Leeds and Royal Agricultural Society embody its main features.

Such a concurrence of authority almost settles the question as to the best general arrangement for a double cottage; and is the more remarkable from the great divergence of the earlier prize designs, one from another, and all from this. I wish most explicitly to disclaim for myself any claim of originality in this plan. I put forward a much stronger claim on public gratitude if, after having carefully examined many hundred plans (as I have done), I have selected that which has the concurrent approbation of the best authorities on the subject, and will bear the criticism of the present meeting.

It is from the sources I have indicated, that I have drawn out (by the assistance, originally, of my friend Mr. Slater, and now by the aid of my friend Mr. Pedley, who has kindly made the elevations for me—and these are entirely my own) what I will not call a "Model Cottage" (for I should be very sorry to see any one type repeated and repeated over the whole country), but yet one which combines all the requirements that I have found to be demanded by those who have studied the subject, and from the experience which I have gained by enquiries among the agricultural labourers of my own parish. I think it better to exhibit only this one design than to complicate the matter by a variety of plans of elevations, with which I should have to find more or less fault. Of course this which I exhibit is open to criticism; and I hope that it may call forth discussion from those who have given attention to the subject of cottage-building. This design, then, professes to be for a pair of cottages for agricultural labourers. It is not suited to be built singly, or in a row of three or more. But a pair of cottages is the most frequent requirement of the country; because the single cottage would of course be comparatively dearer; and, from having all its sides outer walls, would, with the same thickness of brick, be much colder; while a row of cottages, besides being by association less country-looking, is also far less convenient for having a garden allotment attached, of sufficient size to enable the tenant to pay a remunerative rent.

It is in that way that I could meet the difficulty of the landlord's gaining a fair return for his capital. For the mere house, it cannot be done from the ordinary pay of a field labourer. Eighteenpence a week is as much as a man can well pay for rent, out of 12s. or 14s. a week wages; but £4 per annum is poor interest for £120 or £150 laid out by the landlord on a cottage which he has

to sustain in repair; but add a quarter or half an acre, at ordinary farm rent, and the extra £1 or £2 which the cottager has to pay is more than compensated to him by the market-garden value which the land at once gains in his hands. Thus, by converting the grass or arable ground into garden, and affixing it to the cottage, the extra rent which the landlord may at once put upon the whole makes up to him for the insufficient return of the house singly. I need hardly observe how doubly valuable to the cottager is the land attached to his dwelling, compared with the field allotment, which, as all who know country customs are aware, is almost always staked out in the most distant and inconvenient corner of the parish.

I enter into this part of the subject because it meets the financial point of the question—in this as in every other matter—the one on which all eventually turns. If it were not that cottages are required to be built cheap, we need not consider the matter at all. Or let me not say "cheap." Let us only make a cottage remunerative; and we have to consider whether it is cheap, but whether it is good. The plan I have indicated will unfortunately only meet the cases where land is at its natural value as land, and is at the disposal of the builder—but this is the case in nine-tenths of our rural parishes, and it is with these that I profess to have most to do.

(To be continued.)

THE APPROACH TO THE CITY HALL.

For a lengthened period it has been in contemplation to improve the approach to this building—which every citizen knows is at present not only inconvenient but dangerous—and the Corporation sought plans for the purpose both from the city architect and the borough engineer. Desirous, however, of profiting by a comparison of numerous suggestions, and adopting that which would seem in their judgment to be the most suitable, Committee No 3, to whom the matter is more immediately entrusted, recently advertised a premium of £20 to architects for the best design, to be submitted on or before the 4th inst. We are sure that we need not remind the intelligent gentlemen who compose this committee that a serious responsibility devolves on them to exercise their judgment on the point of convenience, with due regard also to the architecture of this handsome building—the *chef d'œuvre* of the late Mr. Cooley, architect, and not of Mr. Gandon, as popularly supposed—which the slightest injudicious innovation would damage. Without anticipating the merits or demerits of any of the probable designs, we would strongly recommend the exclusion from consideration of any in which ornamental work may be made a prominent feature. The classic and solid character of the building should be preserved intact, and for this reason the introduction of iron-work must be avoided, and moreover the approach, as an accessory, ought to harmonise both in detail and outline with the general features of the building.

A question may arise as to the desirability of making the entrance under the portico facing Castle-street, instead of the present one, opposite Parliament-street, as Cork-hill presents a steep incline of one in eleven feet; but at this stage we abstain from comment on that point. We shall be happy to hear of a satisfactory and judicious selection from the designs.

OUR WESTERN SCENERY.—In no country in the world of the same extent is there so great a variety of magnificent scenery as in Ireland. Wicklow, Killarney, and Connemara are famed for the beauty, grandeur, and sublimity of their scenery. Lake and mountain, glen and wood, and cataract combine to render those localities the most enchanting on the globe; but our own Western Highlands are not surpassed by the most romantic of them all. Since the steam navigation of Lough Corrib has been opened, tourists have peculiar facilities in approaching some of the grandest scenery in the West of Ireland. An evening in Kingly Cong, a stroll through the ivied ruins of the old abbey, an exploration of those natural curiosities, the pigeon-holes, will amply repay the lover of nature. A sail up to Maam, under the shadow of the grey old mountains, rising abruptly from the water's edge, must impress the traveller with the magnificence of the surrounding country. The pass of Kylemore, on the road from Leenane to Clifden, presents one of the grandest spectacles in nature. Glen Ina, Lough Ina, and Laka Derryclare, with their wooded islands, embosomed in the Ten Pins, whose solitude is only broken by the scream of the eagle, must have a peculiar attraction for tourists who frequently seek in a foreign land, at great expense and personal inconvenience, what they could so much better have obtained at home. As we will soon have an additional steamer on the lake, it is to be hoped that not a nook or corner of our western scenery will remain unexplored.—*Galway American*.

ROYAL IRISH ACADEMY.

A GENERAL meeting took place at the Academy-house, Dawson-street, on the 23rd ult., the Very Rev. Dean Graves, President of the Academy, in the chair. The Rev. Dr. Lloyd, F.T.C.D., read a paper on "the probable causes of the earth currents;" referred to council for publication. Dr. Ingram, F.T.C.D., in the absence of Mr. Hodder M. Westropp, read a paper by that gentleman on "Fanals de Cimittiers France, and Round Towers in Ireland;" referred to council for publication. Dr. Robert M'Donnell read a paper "on the organs of touch in fish;" referred for publication. Mr. John Morrissey read a paper "on the existence of a pure passive voice in Hindustani;" referred for publication. Mr. B. B. Stoney read a paper "on the relative deflection of lattice and plate girders." He also communicated some observations on the strength of long pillars. Sir Wm. Hamilton read a paper on the existence of a symbolic and liquid quadratic equation which is satisfied by the symbol of linear operation in quaternions." Both of the foregoing papers were referred for publication.

THE ECCLESIASTICAL COMMISSIONERS' "INSPECTORSHIP" AND "ASSISTANT INSPECTORSHIP" APPOINTMENTS.

WE learn through a private but reliable source that the above appointments will be officially announced in a few days, and that the candidates are very numerous, including gentlemen from London, Liverpool, and elsewhere through England, sustained by flattering testimonials. We should almost have thought that either of the appointments in question did not hold out such inducements to members of the architectural profession at the other side of the Channel—where there is much greater field for the exercise of their abilities than at this—as would have caused such a host of candidates from that quarter; however, doubtless, they expect, and are entitled to have, their claims impartially judged in a public competition.

THE WATERWORKS ARBITRATION.

MR. JOSEPH FISHBOURNE, the arbitrator appointed under the Waterworks Act, sat on the 24th ult. at the City Hall, to hear objections to his draft award in reference to the lands at and about Roundwood, required by the Corporation. Mr. Smyth attended for the Corporation. Mr. Darley, Q.C., Mr. Sutton, Mr. Toomey, Mr. W. K. Clay, Mr. O'Driscoll, and Mr. O'Leughlin, attended on the part of various parties concerned. A variety of objections suggested in court were discussed, and the majority of the cases were settled.

NATIONAL LITERATURE—NEW PUBLICATION.—It is somewhat strange (says the *Galway American*) that while our city is flooded with the cheap periodical trash of cross Channel, and while plenty of our people are found to support it, that no vigorous and sustained effort is made in Dublin to establish a cheap periodical devoted to national and other topics. Duffy's *Penny Illustrated Journal* has signally failed to take a hold with the people; first, because it lacks a true national element; and, secondly, because it became the plagiarist of its predecessors, instead of chalking out a line for itself and following it. But it is needless to say what it did and did not do. In scientific and trades journals we are nearly minus Dublin also. The DUBLIN BUILDER is the only class professional journal devoted to sections peculiar to itself—the architectural and building business. But I understand that the spirited proprietor of this journal is about filling up a vacuum long felt in the city, and much regretted—the establishing of a trade journal to advocate the claims and interests of the Irish artificers. The first number of the *Irish Operative* is to be published in July. I hope the artificers of this country will support a journal established in their interest and behalf.

CARPETS, WINDOW-HANGINGS, MARBLE PAPERS, ETC., ABSORB POISONOUS GASES.—Carpets should be kept well swept, and often removed for the purpose of being dusted, and hung in the air; for carpets, and other articles of a porous description, are liable to absorb impurities. Good housewives should bear in mind that window-hangings, wall-papers, bed-furniture, and some other substances, in the same manner as carpets, absorb and retain any taint of the atmosphere. This is plainly shown by the smell of window-curtains, table-covers, &c., in rooms in which tobacco has been smoked. Poisonous gases lodge in the same way as does the tobacco-smoke in all porous substances.

A meeting of the Inhabitants of Passage (Cork) was held to consider the expediency of adopting the provisions of the Irish Towns' Improvement Act. The adoption of the Act was rejected.

INDURATION OF STONE.*

MR. FREDERIC RANSOME, of Ipswich, who has patented several processes for the production of artificial stone and for the preservation of natural stones liable to premature decay, has recently discovered a new and simple process, by which it is stated that some of the commonest and most abundant natural materials may be combined and formed into solid blocks of masonry, or moulded into works of art, at a cost comparatively trifling.

The peculiarity of Mr. Ransome's process for preserving stone consists in the production within the pores of the stone itself of silicate of lime—a substance which possesses the most enduring properties. He has hitherto accomplished the induration by first saturating the stone with a solution of the silicate of soda (soluble glass), and by afterwards applying a solution of chloride of calcium (muriate of lime). Here double decomposition takes place, the silica combining with the calcium to form a solid silicate of lime, and the chlorine at the same time combining with the soda, forming chloride of sodium or common salt, which is removed by subsequent washings or otherwise. It was in noticing the enormous cohesive properties exhibited by the silicate of lime thus produced that Mr. Ransome was led to investigate the applicability of that material as an essential ingredient in the manufacture of stone itself, and the results of his experiments have been patented. The new process consists in mixing common sand, chalk, or other suitable mineral substances with a solution of silicate of soda into such a consistence that the mixture can be easily moulded into blocks or any other forms, rolled into sheets or slabs, or applied with a trowel as ordinary cement. Afterwards a solution of calcium is applied by means of a brush or by immersion, as may be most convenient. The patentee states that the effect is instantaneous, the material being immediately converted from a soft soluble substance into a hard insoluble compound, capable of resisting the influences of the most deleterious atmospheres, and possessing the property of gradually increasing in hardness with the lapse of time.

Amongst the advantages of this process, it may be mentioned that the stone can, in most cases, be manufactured upon the spot,

from materials obtained in the locality; that it can be moulded into any form, or made in masses of any dimensions; that it is equally available for ornamental and decorative as for constructive purposes. It requires no artificial drying or burning, while it is in no way liable to shrinkage or distortion of any kind. It exhibits all the characteristic features and appearance of the best freestone, and can be produced of any desired tone of colour.

Dr. Edward Frankland, who was appointed by the Government to investigate the causes of decay of the new Houses of Parliament, says, speaking of the tests to which Mr. Ransome's new stone has been subjected:—

"The chief object of these experiments was to expose the samples to influences similar to those to which the stones themselves would be subjected, when used for outside work in our large cities; but in order as far as possible to arrive, within a moderate time, at results which under ordinary circumstances would only be obtained after the lapse of many years, it was necessary to intensify those influences by presenting the various chemical reagents to the stone more continuously, and in a more concentrated form than would be the case in the ordinary atmospheric degradation to which building stones are exposed."

The experiments were made in the following manner:—The samples were cut as nearly as possible of the same size and shape, and were well brushed with a hard brush. Each sample was then thoroughly dried at 212 degs., weighed, partially immersed in water until saturated, and again weighed; the porosity or absorptive power of the stone was thus determined. It was then suspended for forty-eight hours in a very large volume of each of the following acid solutions, the alteration in weight after each immersion being separately estimated. Solution No. 1, water containing 1 per cent. sulphuric acid; solution No. 2, water containing 2 per cent. sulphuric acid; solution No. 3, water containing 4 per cent. sulphuric acid. The sample was then boiled with water until all acid was removed, and again weighed. Finally, it was dried at 212 degs., brushed with a hard brush, and the total degradation or loss since the first brushing was ascertained."

Name of Stone.	Porosity per centage of water absorbed by dry stone.	Percentage Alteration in Weight by Immersion in dilute Acid.						Total percentage loss by action of acid and subsequent boiling in water.	Further loss by brushing.	Total degradation from all causes.
		Of 1 per cent.		Of 2 per cent.		Of 4 per cent.				
		Loss.	Gain.	Loss.	Gain.	Loss.	Gain.			
Bath	11.57	1.28	—	2.82	—	2.05	—	5.91	.26	6.17
Caen	9.86	2.13	—	4.80	—	.67	—	11.73	1.60	13.33
Aubigny	4.15	1.18	—	4.00	—	—	1.04	8.56	.29	8.35
Portland	8.86	1.60	—	1.10	—	1.35	—	8.94	.24	4.18
Anston	6.09	3.52	—	3.39	—	8.11	—	11.11	.27	11.38
Whitby	8.41	1.07	—	—	.53	none.	none.	1.25	.18	1.43
Hare Hill	4.81	.75	—	—	.60	none.	none.	.98	.15	1.13
Park Spring... ..	4.15	.71	—	—	.10	.15	—	.81	none.	.81
Ransome's Patent ...	6.53	—	.95	none.	none.	none.	none.	.68	.81	.94

There was no loss with 2 per cent. or with 4 per cent. of dilute acid, and only the fractional portion of a single part, as shown in the total of degradation from all causes.

The comparisons in Dr. Frankland's Table of Experiments, whilst they point out the Portland, Whitby, Hare Hill, and Park Spring, as the natural stones best adapted to withstand the influences of town atmospheres, indicate Ransome's patent concrete as equal to the best of these in its power of resisting atmospheric degradation; and the newness of Ransome's stone (the specimens experimented upon not having been made a fortnight) being taken

into account, together with the fact that its binding material, silicate of lime, becomes harder and more crystalline by age, having led Dr. Frankland to express the opinion that it is likely "Mr. Ransome has invented a material which, with the exception of the granites and primary rocks, is better capable of giving permanency to external architectural decorations than any stone that has been hitherto used."

Mr. Ransome is still engaged in further experiments with this artificial stone, as to its powers to support a crushing weight, and to sustain strains under varying conditions.

GRAND UNIVERSAL EXHIBITION AT PARIS.

THE prospectus is issued of the Paris Permanent Universal Exhibition, which is to be held in a building much larger than the present international building at Brompton, and to be opened in 1863. The capital is already subscribed in France, and extraordinary inducements will be offered to English manufacturers to send their goods. The Emperor Napoleon warmly supports the undertaking, and the ministers of finance, and agriculture, and commerce have taken the preliminary steps for carrying it out with all the influence of the imperial government. The building will be 1,600 feet long, and the grand central dome 345 feet in height. Exhibitors will be allowed to export their goods free of duty, with liberty to re-export them; or they may be sold on the spot, paying the duties levied under the new tariff. The great inducement held out to English manufacturers is, that they will be enabled to exhibit their goods, and thereby check the large sale of spurious articles now going on in Paris. As the French Exhibition follows so quickly upon the International Exhibition at London, it will become a grand object of manufacturers to obtain verdicts of approval. And it is expected that a very

large proportion of articles shown in our present International Exhibition at London, will be also sent to the Paris Exhibition, which will be permanent. A rental will be charged at a rate varying from £1 to £2 for each square metre of wall or ground space, which is trifling in comparison with the enormous shop rents of Paris, while the publicity and advantages will be greatly superior to a shop or office, and the exhibitors are to have the power of undraining all or any part of the extent they occupy, and may engage employees to display their goods. One important feature is, that, unlike the preceding national exhibitions, it is arranged that the admission of the public shall be gratuitous on at least five days in the week, thus affording ample opportunity to intending purchasers of all classes to inspect the articles and samples shown. As the whole of the space allotted to France and several other continental countries has already been taken up, our manufacturers and inventors will doubtless avail themselves of this opportunity, the best ever afforded of pushing their products and improvements in France. The exhibitors of Great Britain and Ireland will be represented by a committee of twelve members. Sir Charles Bright and other eminent men are already appointed commissioners for the United Kingdom,

* From the *Journal of the Society of Arts*, June 6, 1862.

STUDIES OF MODERN ARCHITECTURE AT HOME AND ABROAD.*

By G. R. BURNELL, Esq.

IN one of his earlier works, Victor Hugo said very truly that "quand on sait voir, on retrouve l'esprit d'un siècle, et la physiologie d'un roi, jusque dans un marteau de porte;" and it is precisely this connection between the inner soul of a nation, and the external expression of it in its works of art, which gives to the science of Archaeology its deepest interest. "The noblest study of mankind is" said to be "man;" and so every form in which he displays his heart of hearts must merit and repay the study of those who endeavour to ascertain the meaning of the various social phenomena which influence or characterise his history. And it is to be observed that the terms of the latter portion of the preceding sentence have not been used lightly; for the monumental arts of an age and of a nation have a strange action and reaction on the people who examine them daily. Properly understood, then, the "sermons in stones" may enable us to supply many blanks in the written stories of past ages, and to revive the living pictures, perhaps long since effaced, of the thoughts, feelings, aspirations, and faith of nations only known in chronicle by their deeds of destruction. History, as we read it in books, is too often a mere record of deeds of war and violence; the power and energy of construction are to be divined from the monuments of an age or country.

It would far exceed the limits which could be allotted to the articles of a publication, such as is now presented to the students of art history (as displayed in contemporaneous architecture), were an attempt made to work out the preceding notions to their natural consequences, throughout the whole of the long period of man's tenancy of this "sepulchral clod." A careful comparison of the works in course of erection in the most important cities of the civilised world, or which have been completed within our own time, will, however, serve well to "point the moral" sought to be demonstrated; and indeed society has passed through such marked changes within the period which has elapsed since 1814, that the art history of that time may serve to elucidate many questions which would throw a reflex light on those which have gone before. The general diffusion of education, the improvement of the analytical process of investigation, the development of the means of intercommunication, the great strides made in manufacturing industry and commerce, and the thousand ways in which man has recently, in sober truth, "made fire, flood, and earth the vassals of his will," have produced results so startling that society has, in the last half-century, been more changed in all its external expressions than it had been in any previous two or three centuries. What is the moral to be learned from this restless, ceaseless striving after a perfection which recedes as we advance, and in the pursuit of which we find that the gain of to-day only opens up the want of the morrow? What are the prospects, what the dangers, hopes, and fears to be anticipated from the spirit now abroad? Is there "good in everything" going on around us, either for the moral or for the intellectual advancement of our race? and have late years furnished lessons for our guidance or for our warning? These are noble subjects for inquiry, and it is proposed in this and in some subsequent articles, if favourably received, to discuss the bearings of recent architectural and archæological revolutions upon their solution.

The first enquiry which presents itself is the one as to whether periods of excellence in art correspond with any peculiar conditions of social organization? for, to limit our observations for the present to the two leading nations of Western Europe, England and France, we may observe that within the last half-century there have been three distinctly-marked phases in the history of architecture, corresponding rudely with the great political dates of 1814, 1830, and 1848. Of course architecture in the two countries thus named has assumed characteristics which are in the respective cases "racy of the soil;" just as, during the period of the great revival of classical art, the architectures of Florence, of Rome, and of Venice, bore the impress of the respective states of society amongst which they arose; and as must always be the case when the rude materials employed, the atmospheric conditions, and the social organizations of nations, differ notably. But in spite of these local modifications, it is easy to perceive that every one of the great changes in the architectural expression of the two countries named, have borne a marked parallelism with the contemporary political events, the nature and extent of which it must be of interest to study.

Previously to 1814 the iron despotism of the Empire of the first Napoleon had effectually crushed everything like originality of thought in the French people, and had drilled the national mind into the uniformity of a camp. The architecture of his day bore indeed the physiognomy of the Emperor; and it was modelled

upon so lifeless an imitation of Roman imperialism, that it is easy to understand the cry of the aspirers after freedom of thought who sighed, almost in despair, for the man "qui les délivrerait de ces éternels Grecs et Romains." There was, however, a solid grandeur, a bold, simple, massive effect about such buildings as the Bourse, the Madeleine, the Arc de l'Etoile, l'Arc du Carrousel, la Colonne de la Place Vendôme, the Marché St. Germain, the Entrepôt des Vins, the Abattoirs de Paris, the Pont de Jena, &c., which must always preserve the buildings of this period from contempt, even if they should be regarded with dislike. They were stiff and affected, it is true, but they were not *little* in any sense of the word. When Napoleon fell, however, and the Bourbons introduced the freedom of constitutional government, and when men's minds (which had during the long wars of the Republic and of the Empire been concentrated in the great struggle for existence at first, and then for power) could be turned to the cultivation of the arts of peace, a great change soon came over the spirit of the nation, which displayed itself in the altered character of its architecture; perhaps not quite so distinctly as it did in the arts of painting, sculpture, music, and in literature and philosophy, but still perceptibly so. The churches of Notre Dame de Lorette, of St. Vincent de Paul, the Chapelle Expiatoire de la Rue d'Anjou St. Honoré, the completion of the Chamber of Deputies, the commencement of the Palais du Quai d'Orsay, may be cited as illustrations of the public buildings of this period; but the private buildings of the principal towns of France display the tendencies of the architecture of the "Restauration" in a still more decided manner. There is to be found in those buildings erected shortly after the fall of the Empire, as it were, a spirit of revolt against the rectilinear style which had prevailed during the days of the crowned soldier; and towards the end of the Restauration the love for mediæval art began to display itself simultaneously with the brilliant appearance of the romantic school of literature. The galleries Vero-Dodat, Choiseul, Colbert, des Panoramas, the theatres du Vaudeville, Ventadour, &c., may be considered to represent the former phase of French architecture; the reconstruction of the Maison de François 1^{er}, and the commencement of the Ecole des Beaux Arts, of the second. But France had been so exhausted by the wars of the Empire, by the foreign occupation, and the perpetual struggles and contests of parties during the short period of the reigns of the returned Bourbons, that the results of the efforts then made to improve the state of architecture only became apparent after their successor had reduced society to something like order after the fearful outburst of demagogism of 1830.

During the same period (that is, between 1814 and 1830) architecture in England passed through the phase characterised in the beginning by the productions of Wyattville, Soane, and Nash, or of Jupp, Cockerill, senr., and Hardwick, senr., and towards the end by Smirke, Inwood, Wilkins, Jorden, Bedford, Decimus Burton, B. Wyatt, Rickman, Britton, and Pugin, though the three last-named artists were rather archæologists than practical architects. The buildings of London, and indeed of England generally, were then as deficient in taste and artistic feeling as it is possible to imagine, externally, at least; and internally, more attention was paid to physical gratification, to comfort, than to anything like intellectual expression. Practically, we had long been excluded from all interchange of ideas with the rest of the world by the struggle we had sustained against the French Revolution; and having been victors in that struggle, we had fancied that others ought to learn from us, not we from them. Our arts, and our architecture in particular, at this period, were intensely local in their feeling and mode of expression; and as our local peculiarities had become exaggerated through our isolation from the rest of the world, they led us to the adoption of a style of architecture for many years which can now only be looked back upon with feelings of shame and of regret. Buildings like the Custom-house, the old parts of Buckingham Palace, the Law Courts of Westminster, Regent-street, the Regent's Park Terraces, the Pavilion at Brighton, &c., are now thought to be so intensely ugly that the only surprise we can feel is, that they should ever have been erected. Yet they were admired at the very same time that the gates at Park Corner, Covent Garden Theatre, the Post Office, St. Pancras Church, the churches in the Waterloo Road, at the corner of Kennington Common, the Lothbury corner of the Bank, &c., were in course of construction, and when the revival of mediæval art was beginning to make itself felt. It would really seem that during the great struggle of the Revolutionary wars all the energy of our nation had been turned to meeting the necessities of the contest; and that, though our commerce, our manufactures, and our means of intercommunication had attracted the attention of our rulers, because they furnished the elements of material strength, the finer arts had been designedly neglected, as being likely to lower the moral tone of the nation. When peace came, the artistic feeling of England no longer existed; and the nation which had produced the Reynoldses, Gainsboroughs, Chameuses, Adamsons, Bacons, and Bankses of the latter end of the

* From "Architecture of the Victorian Age."

eighteenth century, was content to admire the Wests, Fuselis, Wyatvilles, Soanes, Westmacotts, and Nollekines of the beginning of the nineteenth. The imitation of pure Grecian architecture, which became fashionable about the end of the Regency, was, in its way, a vast stride towards a purer and nobler taste; but the reason why we thus adopted the severely beautiful style of the Ionian and Doric rectilinear forms, whilst they were rapidly passing out of fashion in other countries (for there is fashion in these things), must long remain a mystery. It is curious that the building materials we use, and the climatological conditions of England, are far from being so well adapted to the trabecated architecture of the Greeks, as are the fine building stones and the clearer atmosphere of France. Yet, in our case, we persisted for years in carrying out huge horizontal openings by the use of cement and bricks; whilst our neighbours turned by preference to the practice of Vignola and of the Italian architects of the end of the Risorgimento for models and instruction. The latter had, like all who sought their inspiration from the study of classical Roman art, adopted vaulted construction instead of the trabecated one; and we therefore find that the French architects of the "Restoration" had continued in the same course.

THE HEAD MASTERSHIP OF THE ROYAL DUBLIN SOCIETY.

THAT the most faithful and zealous servants are often not only the least appreciated but the most ill used by governing bodies, is painfully exemplified in the instance of the gentleman who for very many years has ably presided over the Art Schools of the Royal Dublin Society, and who now is peremptorily called upon by its governing bodies, without either *rhyme or reason*, to resign his appointment, failing which he is to be subjected to the indignity of "dismissal." Knowing that, during the lengthened period of his connection with this establishment, for his ability, his zeal, his courtesy, his honesty of purpose, his self-respect, his firmness in a position of responsibility, his ever anxious desire to promote the interest of national art and the education of its numerous votaries committed to his care, Henry M^rManus was ever distinguished, the announcement of his contemplated "dismissal," dignified as it may be with the title of "called on to resign," has come like a thunderbolt on us. What new light has broken in on this Society to point out its erroneous course in longer retaining an old and faithful servant who—to adapt the well-known exclamation of Wolsey—has "grown gray" in its service? What secret diplomacy is at work within its venerable walls to effect an act of base ingratitude and wrong, which will justly heap everlasting contumely on its collective head? But we are convinced that this is not the act of the Society, nor will the majority—the general members throughout the kingdom—when the question comes to be tested—as it shall—endorse the attempt of the minority—the mere handful of officials to whom its government is entrusted. The Royal Dublin Society, with all its encouragement to art and science, to horticulture, to agriculture, to industrial progress, &c., has never been remarkable in its internal working for "fair play," for straightforward and above-board dealing, in any one of its undertakings. Red-tapeism and cliques have been superlatively predominant in its councils; extensive buildings have been reared on their premises no doubt, but under what circumstances? How was the Museum, for which plans were invited and obtained years ago in public competition, disposed of? How was the Agricultural Hall, with somewhat similar circumstances, roofed in? One of the latest attempts at perpetration of the council—or rather a portion of it—was to dismiss, to supersede, or whatever they may be pleased to term it, their intelligent, nay learned and venerable, librarian, Mr. Colles; but *the members* would not have it. They now single out another object of attack—Mr. M^rManus—who brought their schools from nothingness to be a creditable national institution, but *the members* will not have *this either*, if we mistake not greatly. [Since the above was written we notice that a special meeting of the Society was called for the 30th ult. to consider the question.]

THE PROPOSED DUBLIN EXHIBITION BUILDING.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—Previous to expending time and labour in preparing drawings to compete for the prizes offered in this affair, and which are admittedly tempting, allow me to inquire, through your columns, if the eminent designer of the Great Exhibition Building of 1851, and of the Sydenham Palace, whose name figures on the prospectus as one of the committee, shall be admissible *also* to compete and to adjudicate on the drawings to be submitted? I regard this as a *highly important* consideration for *all* who purpose competing, as it must be obvious that if the reply be in the affirmative, the competition will be *no* competition at all.

ARCHITECTURAL PRACTITIONER.

ON THE APPLICATION OF GLASS TO THE ARTS.

THERE is, perhaps, no material, discovered by accident or man's ingenuity, which has added more to our comfort and gratification than glass. Whether we contrast the partially waterproof, and semi-transparent substance with which in past ages the windows of churches and houses were filled, with the beautiful and almost imperishable material which we have at our command; or whether we contemplate with admiration the glorious and indestructible mosaics, which have preserved to us, and will preserve for ages, the works of some of our greatest masters in art, whose divine inspirations and conceptions delight and elevate the soul; or whether we consider the domestic comfort even the poorest enjoy, in possessing a useful and beautiful substance, capable of being fashioned to any form or enriched with any ornament. After its discovery, the first application of glass was to artistic purposes, and not till about A.D. 422 have we any account of its being used for window glazing.

There is considerable difference of opinion as to whether it was discovered accidentally or not. It is, however, certain that the Egyptians understood not only the method of making glass, but also the use of metallic oxides in imparting to it various colours. In mummies which must be more than 2,000 years old have been found small glass images of gods, beads, and ornaments. In the time of the Emperor Nero glass vases and cups were made of beautiful design and transparency. The famous Portland vase, discovered in Nineveh, and now in the British Museum, is formed of deep blue glass, ornamented with figures in white enamel. It was found in the tomb of Alexander Severus, who died A.D. 235. The date of its manufacture is supposed to be about 700 B.C.

The first account we have of the use of glass in windows in Great Britain is given in the Venerable Bede's History of Wearmouth. He says, that the Abbot Benedict brought over artists from the Continent, or "beyond the seas," to glaze the windows of the church and monastery of Wearmouth, in Durham. This took place about the year 674. It was not, however, till much later that the art of glass staining was introduced amongst us. It began to flourish about the end of the eleventh century or the beginning of the twelfth. Its use was even then confined to churches and monasteries, the windows of dwelling houses being secured with oiled paper, linen, or wooden lattices.

The object of these articles being to treat of glass as used in the Arts, no notice will be taken of its introduction for ordinary glazing, nor will any description be given of that glass which is only used for such purposes.

Silica (flint or sand) and alkali are the principal constituents of glass; to these is added either lime or oxide of lead, as may be required to produce glass of different kinds. Other materials are used, as well to correct impurities as to improve its quality. The sand, alkali (soda or potash) and lime, or oxide of lead, with any other required ingredients, are mixed well together, these are fritted in a proper oven, and are afterwards melted in a glass-pot, which is made of fire-clay. The time of fusion varies from 18 to 36 hours, according to the mixture of which the glass is to be formed, and according to the form of the pot used. When the metal, as it is technically called, is reduced to a proper state, *i.e.*, a tenacious, pasty state, a portion is collected on the end of a pipe, and blown to the required form. When in this condition, glass can also be rolled on an iron table, or pressed or blown into moulds.

Glass made in these various ways is used in the construction of stained glass windows, of which it is proposed to treat before considering enamels, mosaics, and inlays.

In the early ages of glass painting, only blown glass was used. The method of its manufacture is this:—A portion of the melted glass was collected or gathered on the end of the blow pipe (an iron tube about five feet long), it was then blown into a cylindrical shape, opened by the heat of the furnace at one end, and at the other by a cold iron passed round it—which left it a cylinder open at both ends. This was cut through longitudinally, and placed in a kiln with the cut side uppermost; as soon as the glass got soft it parted at the cut, and, with the assistance of the workman, was flattened into a sheet. This method is still employed in the manufacture of sheet glass. In the early times, whether from want of skill or by design, the glass was blown of uneven thickness, and was also full of air-bubbles and streaks. This is one of the causes which help to produce the brilliant effect observed in early stained glass. Whatever was the composition of the glass, this was the method of its manufacture. This branch of the subject will be treated of more at length when we come to consider the selection of glass best suited for ornamental windows. Rolled glass is of modern introduction, and is now largely used with good effect. We are indebted to Mr. James Hartley, of Sunderland, for this addition to our resources. The method of manufacture is very simple. When the glass in the pot is in the plastic state, a portion is taken out with an iron ladle, and poured on a perfectly smooth iron table, a roller is quickly passed over the melted mass, rolling it out to the required thickness. Rolled glass is not clear like blown glass, and when held to the light has a

sparkling and brilliant appearance. Pressed glass is made by collecting or gathering a proper quantity of plastic metal on the end of an iron rod, then dropping it into a mould of the required form, and bringing down on it a plunger, which presses it into all the interstices. The glass used for pressing is usually that which is made with oxide of lead, and is called flint glass.

Theophilus, in the second book of the *Diversarum Artium Schola*, gives a most minute and interesting account of the method employed in his time (about the tenth or eleventh century) in building glass furnaces, in making glass of various colours, and in the mixtures required. He also treats of the method of glass painting, which differs in but few particulars from that now in use. A translation of this work, from the original Latin, may be found in the appendix to a very learned and instructive work, entitled "Hints on Glass Painting," by an Amateur, published by Mr. Henry Parker, of Oxford. Having briefly considered the various ways in which glass used in ornamental windows is manufactured, and the materials of which it is composed, a few remarks are necessary on the method of colouring its substance or surface. Glass is coloured through its substance when a metallic oxide, capable of imparting to it a colour, is introduced into, and fused with the original mixture. If the three materials—sand, alkali, and lime, or oxide of lead—are perfectly pure, the glass, if protected during fusion from the smoke and flame of the furnace, will be perfectly white. When proto-oxide of copper is used as the colouring agent, the product is a beautiful emerald green; when the oxide of cobalt is employed, a rich blue, more or less intense according to the quantity employed. Gold imparts a beautiful ruby colour to the glass, as also does the sub-oxide of copper, greenish or yellow tints are obtained with iron, and purple with manganese. All these various coloured glasses are, when fused, blown, rolled, and pressed into moulds in the manner above described, with the exception of the ruby, the manufacture of which requires explanation. When gold is used as the colouring matter for ruby it is melted in the ordinary way in a covered glass pot; portions are gathered in suitable shape and left till cold; at this stage their colour is dirty and indistinct. They are afterwards inserted in a pot of white glass, which is gathered round them in proper proportion; the whole is then blown into a cylinder, and the ruby glass has acquired its rich and beautiful colour, varying in tint from a delicate pink to an intense red, according to the thickness of the coating of the ruby glass. If the sub-oxide of copper be employed the method of manufacture differs, a proper quantity of white glass is gathered on the blow pipe, which is then dipped into the melted ruby, and is blown to its proper form. Glass so made is called flashed or coated glass. Other colours besides ruby are made in the same way, such as blue, green, and purple. Silver imparts to glass a beautiful yellow colour, but is never used in any other way than as a stain; it will not colour glass in the pot. The method of applying it is as follows:—Silver is melted with antimony, thrown into water, and then ground on a slab; in order to divide its particles, it is mixed with Venetian red, and is floated with water on to the parts of the glass which it is desired to stain. If the quantity of silver be small, the colour obtained is a pale straw colour; if much is used, an intense orange red; all gradations of tints between these can be made by a proper regulation of quantities. Glass which is made from kelp, called kelp glass, receives the silver stain better than any other. There is no other method than those described of imparting colour to glass. First, by colouring it through its substance during fusion; glass so made is called pot metal. Secondly, by coating or flauishing white glass with a colour. And, thirdly, by staining it with silver, which stain penetrates slightly below its surface, and is perfectly transparent. Colours can be made to adhere to glass by means of a flux, they are called enamel colours, and will be treated of in their proper place, when we come to the consideration of the various styles of glass painting. If glass be allowed to cool immediately it is taken from the pot, it is, when cold, very brittle, and will fly into pieces at sudden changes of temperature, nor could it be cut with the diamond. It is, therefore, placed in an oven or kiln, and allowed to cool gradually for some hours. This process is called *annealing*, and must be repeated whenever the glass has been subjected to the action of a strong heat. Before proceeding to describe the method of glass painting, a few remarks are necessary on the *quality* of the glass to be selected. A knowledge of its manufacture and constituents will greatly help us, and for that reason it has been first briefly considered.

It has been very often said that the secrets of colouring glass and of glass painting have been in a great measure lost. In proof of this the brilliancy, depth of colour, and beauty of the old glass is instanced. The answer is, that glass can be obtained as rich in colour and similar in texture to that used in the thirteenth century, and that many glass paintings have been lately executed which quite equal any of the ancient works of art. It is true that in the seventeenth century glass painting declined, and continued to do so till its late restoration. So did Gothic architecture. There was, too, doubtless, a difference in the colour and texture of glass during

this period. More attention was paid to the commercial than the artistic element, and it is not till within the last twenty years that proper attention has been paid to the fact, that *texture* and colour contribute equally to produce a brilliant effect. Again, during this period, a different method of glass painting came into use, more enamel colour was employed, and windows, such as they were, were simply transparencies, semi-opaque. It has been stated that ruby is a coated glass. This is not *always* the case. Many examples of early ruby exist in which the colour is streaky partially through the *substance* of the glass,—say to the depth of nearly the eighth of an inch,—and in some instances through its entire substance. Ruby glass of this kind has been made by Messrs. Hartley, of Sunderland, similar in texture and equally as beautiful as the ancient examples. That firm, and Messrs. Powell & Sons, of Whitefriars, London, have given great attention to the reproduction of ancient glass. Their efforts have been crowned with *perfect* success, and, in many instances, they surpass our forefathers, in that they produce a greater variety of tints. Without wishing in the least to underrate ancient art, it is but just to give all due praise to the productions of our own age. Our resources are greater than, our talents are equal to, those of our predecessors, and, in proportion as modern artists are actuated by the same principles which guided them, so must they *equal*, at least, their greatest works.

(To be continued.)

THE NEW PROVINCIAL BANK OF IRELAND, COLLEGE-STREET.

AMONGST the numerous acquisitions to the metropolitan street architecture which it has been our pleasure to notice lately, as either consummated, actually in progress, or projected, the subject of this notice is not the least important, and, owing to its central position in a leading thoroughfare, more than ordinary conspicuousness will be secured, a circumstance on which all parties concerned and the public will have reason to congratulate themselves. For some years past the Directors of the Provincial Banking Company—one of the most thriving institutions in the kingdom—have been desirous of removing from their backward and unsuitable premises in William-street, to a more comprehensive and more conveniently circumstanced establishment, and for that purpose entered into negotiations with the proprietors of the Police Divisional Station and Court building, of the Royal Irish Institution, and of the adjoining house, occupied by a confectioner, in College-street; which negotiations, although unusually protracted, have been brought to a termination, the result being the intended total demolition of the existing buildings, and the erection of a handsome bank structure, from the designs of the company's architect, Mr. William G. Murray. The total frontage is about 77 feet, and the rear will extend to Fleet-street, where a separate entrance is provided. The elevation of the building will be 61 feet, presenting a central projection of 37 feet in width, with four three-quarter Corinthian columns, carried up two storeys—viz., the first and second—and surmounted by a pediment; and of the same order being introduced on the wings, which are finished with a balustraded parapet. In the interspaces the first floor central windows have enriched pediments, and those of the wings semicircular blind heads, with carved panels therein. A range of semicircular headed opens, with cable-moulded arched, vermiculated key-stones, and a bold pedestal and plinth perforate the ground floor wall, which is capped with an effective cornice. A spacious central doorway leads to a general entrance hall, 31 feet 9 inches by 18 feet, formed into hall and vestibule by coupled columns; and beyond this is the public office for banking business, 77 feet by 45 feet, with coved and panelled ceiling, large and handsome lantern light—the height from ground floor to soffit being 47 feet 6 inches. Immediately communicating with this apartment are numerous others, for manager's consultations, the accommodation of clerks, waiting and ante, necessary adjuncts, &c., &c., and the runners' office at the rear, next Fleet-street. A commodious residence, with separate entrance, is provided for the manager in the wing next Westmoreland-street, and in the corresponding wing there is another private entrance for directors to the board-room, which is placed on the first floor, and to the resident clerks' apartments in this portion of the building. Porters' and servants' living and bedrooms are provided in the block next Fleet-street. The public office, entrance hall, and passages will be floored with rich encaustic tiles. The internal fittings will, we understand, be of handsome and suitable character. A basement storey extends over the entire site, and displays comprehensive culinary arrangements, with fire-proof libraries for old books, stores, safes, &c., &c. The material for the facing of the front remains yet an open question, but we believe that either Glasgow or Portland stone find favour with the architect. The former is a very excellent and durable article, coming into great requisition, and we shall be pleased to hear of its adoption. Tenders for the erection of this building will be sought for immediately.

ZION CHURCH AND SCHOOLS, RATHGAR.

THESE buildings, recently completed, in the rising and populous district of Rathgar, from funds bequeathed by the late John Gold, Esq., is one of the best specimens of ecclesiastical architecture as yet reared in our city or suburbs, and forms the subject of illustration in the present number. The church—which accommodates 860 persons, and is capable, by the addition of transept galleries hereafter, of accommodating 1,000—comprises nave, 100 feet by 38 feet; chancel, 22 feet 8 inches by 23 feet; transepts, each 29 feet by 22 feet 6 inches; south aisle and organ room, with tower at north-east angle, containing the robing-room, 18 feet 6 inches square at base, and rising to a height of 115 feet, capped with high pitched roof, tiled in black and red. There is a western gallery, approached by a stone stairs at south-west angle of nave. The roof and fittings are of open timber, stained and varnished. The school building, which in material and style harmonises with the church, contains two school rooms, each 40 feet by 20 feet, with open roofs, also class rooms, residence for master, &c., &c. The materials employed throughout are calp and granite for the rubble walling, Portland for the extensive cut-stone dressings, quoins, &c., and Caen stone for the internal columns, arches, &c. The designs for these works were made by Messrs. Joseph Welland & Son, and contracted for, at £9,600, by Messrs. Cockburn & Sons, who brought them to completion in the usual excellent style of that eminent firm, under the immediate and efficient supervision of Mr. M'Allister, inspector of Church Works to the Ecclesiastical Commissioners.

THE PROGRESS OF RATHMINES TOWNSHIP.

OUR frequent notices of the numerous improvements from time to time effected in this neighbourhood, have conveyed an adequate idea of the rapid—unprecedentedly rapid—progress of the township; but the following official account, read at the recent General Meeting of the Commissioners, will supply additional particulars:—

“The Commissioners have only to repeat the observations of former years as to the progress of the district. The present rate has eighty additional houses, of the annual value of £2,035; and sixty-two new houses are now being erected, many of them first-class, on Lord Palmerston's ground and at Leeson-park—the latter chiefly, where also a handsome new church, attached to the Molyneux Asylum, has just been opened, and adds greatly to the appearance of the neighbourhood. The Parliamentary Census shows an increase of 476 houses and 2,685 persons in the ten years, from 1851; the present population is 12,874. In consequence of the reduction of the rate to 1s. 8d., and the large and unforeseen expense of opposing the Waterworks Bill, and other heavy calls, the accounts close with a balance of £181 10s. 1d. against the Commissioners. A considerable extent of new roads have been given up by the owners to the board, which, of course, has added to the current expenses. At the annual revision twelve new lamps were granted, chiefly in new roads; this number includes two paid for by proprietors for one year. In crossings very little has or can be done, in consequence of the heavy cost and narrow margin of means. The Board are glad to observe, however, that a larger sum than usual has been contributed from private resources, for flagging and kerbing, works promoting the general comfort of all, and to which the board are anxious to give every encouragement. Little or nothing has been done in the drainage branch this year; and the Commissioners regret to say that the sewer at Harold's Cross still remains closed up. Upon the important subject of water supply, the Commissioners have to report that their opposition to the Waterworks Bill was not successful before the Lords; and the Corporation have obtained powers to sell to the inhabitants of the Township water at 1s. 3d. in the pound. The board do not find it necessary to revive the discussion of the matter. Though their efforts proved ineffectual, they rest satisfied that the utmost was done that could be done to resist the measure, and believe they were fully justified in so doing. As shadowed forth in the last report, the Commissioners have entered into a contract with the Grand Canal Company for a supply of water from the ninth level, on fair terms, and pipes for the whole district have been contracted for at the low rate now current for iron. The eminent water engineer, Mr. Bateman, has been consulted as to the best means of supplying the district; and the plans are in such a state of forwardness, that the board trust before the next annual meeting every inhabitant of the district will have water at high pressure placed within his reach. The necessary funds for the purpose the Board expect to provide for by loan at 4½ per cent. By the kind liberality of Sir Charles C. W. Domville, Bart., a suitable site for reservoirs and filters has been presented by that gentleman to the

Board, who have had merely to purchase the tenants' interest. The Commissioners have been induced to undertake the onerous duties which these waterworks will entail, by an earnest desire to insure the independence of the township; and they have a confident feeling that the successful carrying of it out will largely contribute to the general comfort. The board thought themselves justified in supporting the Fire Brigade Bill, promoted by the Corporation of Dublin, as by its provisions an efficient corps for the extinguishing of fires is provided, which will be available to the rest of the county, on the very reasonable terms of the payment of the actual value of any service which may be rendered. Upon this subject the Board regret to say that a sum over £200 will fall on the district, as its proportion of malicious burnings in outlying districts of the county, the presentments for which have been spread over the Township, notwithstanding the energetic, but fruitless, remonstrances of the Commissioners. In reference to the new act, by which the townlands of Rathgar and Sallymount have been annexed to the Township, the Commissioners merely desire to state, that a proposal having been made by some leading inhabitants of that district for permission to annex it to the Township, the board, after careful consideration and some hesitation, consented to do so on specified terms, which they thought equitable to both old and new; and the board will, by the addition of Messrs. Todd, Sykes, and M'Master (the three Commissioners named in the new act) be henceforth composed of twenty-one members. Some important new powers have been obtained, but the board reserve any more detailed reference to this act, until some little experience of its working enables them to do so with confidence. One gratifying circumstance they cannot but advert to, that there was not either in the old or new district a single dissentient voice raised. The applications for public-houses have been closely attended to, and so far with success. The board having received the resignation of their late Secretary, Mr. Richards, were much rejoiced to be able to supply his place by the appointment of their excellent and valued colleague, Mr. Evans—an appointment they are glad to think will greatly extend the efficiency of the working of the Board, and be generally approved of by the ratepayers. At the annual election in September last, the retiring Commissioners were unanimously re-elected, except Mr. Hugh Morrison, who had previously resigned, and in whose stead Mr. John Fry was elected. Alderman Lambert and Mr. Evans having also resigned, Mr. William Wight, of Leeson-street, and Mr. William Reynolds, of Woodpark, were elected in their stead. The retiring Commissioners at the next annual election are Messrs. Asken, Butler, Collis, Dunnill, Warren, and Wight.

“FREDERICK STOKES, Chairman.”

ARCHITECTURAL ASSOCIATION.

A MEETING was held on the first Friday in last month at the rooms, 9, Conduit-street, Regent-street, Mr. Thomas Blashill, V.P., in the chair. Mr. Robert H. Burdon, Berners-street, Oxford-street, was elected a member.

Mr. Paraire moved that the honorary secretary be requested to apply for an official copy of the document recently agreed to by the Royal Institute of British Architects, relating to professional practice and charges of architects. Seconded, and unanimously agreed to.

Mr. R. O. Harris suggested the organization of a scheme for visiting, during the summer, old buildings in London and neighbourhood, such as Westminster Abbey, St. Paul's, and St. Alban's Cathedral, in company with some gentleman well known for his information and interest taken in the objects visited. Such visits would be very profitable, and at the same time form the subject of interesting study.

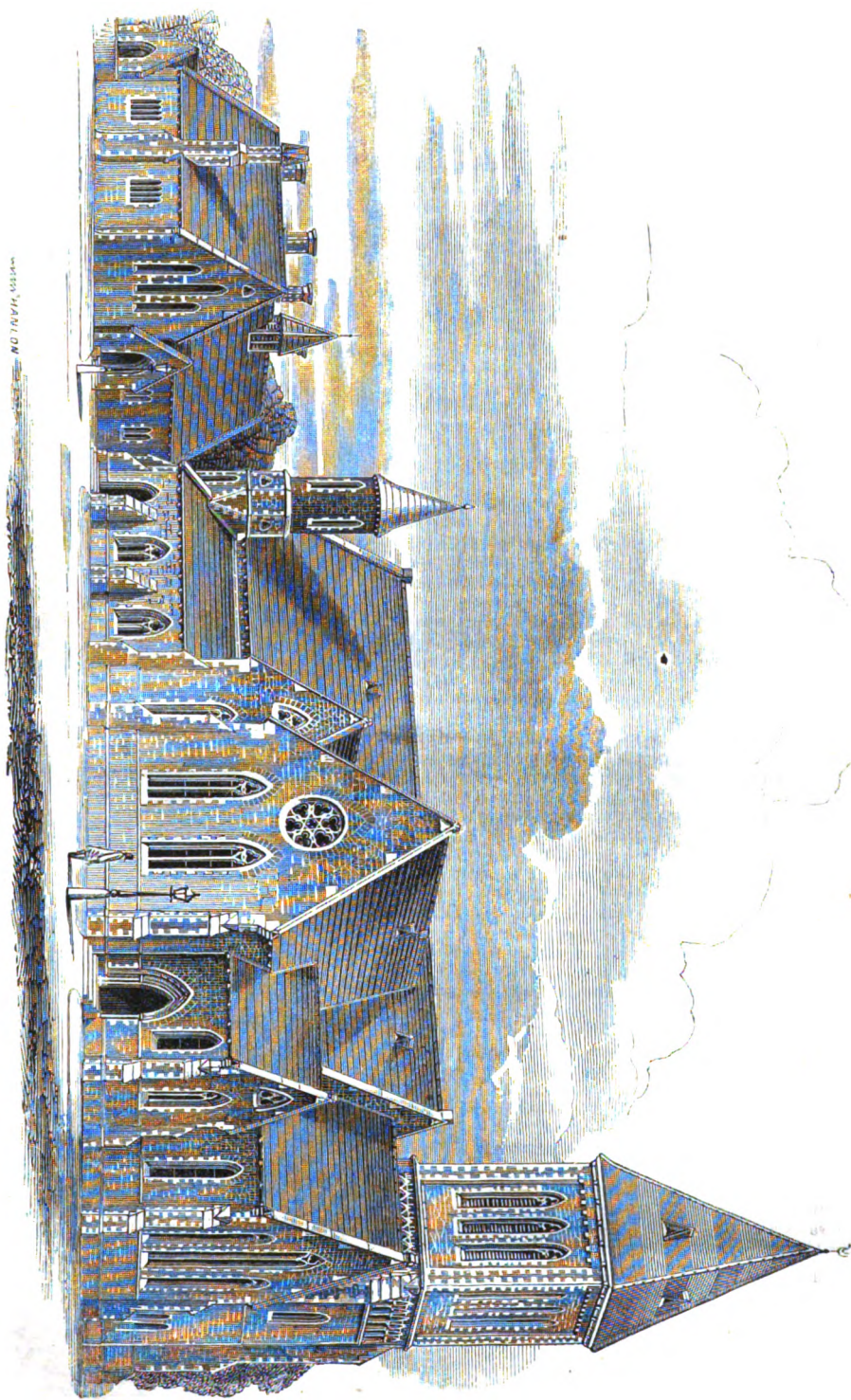
The chairman approved of the suggestion. After some discussion, it was agreed to that arrangements for a visit to Westminster Abbey should be made before the next meeting.

The honorary secretary announced several donations to the library.

Proposed Architectural Alliance.—Mr. T. Roger Smith moved the following resolution:—“That this Association send a deputation, as requested, to attend a meeting of delegates who are summoned to deliberate upon the proposal for an Architectural Alliance, but that the delegates be not empowered either to grant or refuse the adherence of the Association to the proposed alliance, the Association declining to come to any decision on this point, until after receiving a report from the deputation. Seconded, and was, after a long discussion, agreed to. The following gentlemen were appointed the delegates from the Association:—The President of the institution, *ex officio*; and Messrs. T. Roger Smith, A. W. Bloomfield, M.A., and J. A. Bunker.

Office-bearers for the ensuing session were then elected.

On the 29th ult., the Albert Memorial Fund, at the Mansion-house, London, amounted to £50,000, inclusive of about £1,300 collected in a few days by the Society of Arts' Committee.



ZION CHURCH AND SCHOOLS, RATHGAR, DUBLIN.

MESRS. JOSEPH WELLAND & SON, ARCHITECTS.

**THE LIBRARY
OF THE
UNIVERSITY OF MICHIGAN**

IRISH SOCIAL AND INDUSTRIAL STATISTICS.—III.

PROGRESS IN WEALTH AND CIVILIZATION.

PREVIOUSLY to 1783 (as we read in an admirable article on the subject in "Thom's Directory"), "The whole of the banking business in Ireland was carried on by private individuals." "In 1804, there were fifty private banks in Ireland, *all of which have failed*, or wound up their accounts, except three in Dublin that continue to transact business." In that year there were no less than 295 issuers of paper money, for sums so low as shillings, and even pence, and these issuers were "chiefly merchants, shopkeepers, and petty dealers."

Our progress from this semi-barbarous condition in monetary matters has been striking indeed. In 1783, the Bank of Ireland was established. In 1824, the Hibernian. In 1825, the Provincial, followed in subsequent years by the "Northern." The Belfast, the National, the Ulster, and the Royal Bank, all joint-stock incorporations, not only of great capital (over ten millions sterling in the aggregate), but directed by mercantile men of the highest standing in the country for wealth, intelligence, and enterprise. Before these and the action of a reformed banking code, the penny paper issuers vanished, and our people, now provided with safe depositories for their savings, began to accumulate and deposit to an extent as gratifying as it is unknown in our previous history. A few statistics will illustrate this progress. The Bank of Ireland commenced with a capital of £500,000. It has now grown to £3,000,000, with deposits still larger in amount. The deposits in the Hibernian in 1825 were £87,004; in 1857, £469,427; in 1861, £605,569; but perhaps the progress of the National Bank, whose operations are more extended than those of any other, will afford us our best illustration. This bank, which has branches in every town of any importance in Ireland (now fifty-two in all), well deserves its title of "National." It was founded in 1835. Passing over its earlier and rather chequered career, we come to the period of 1852. At the close of 1851, the sums deposited in its various branches amounted to £1,188,793. In 1857, there were £3,079,622, and the report for this year announces the further progress to £4,261,933. All the other banks named show by their reports progress in the same direction—all equally decisive—in degrees more or less extensive. Savings' Banks, introduced in 1810, have gradually extended their beneficial influence over the country. In 1834, the amount deposited was £1,450,766. These deposits increased year after year up to 1856, when £2,921,581 was reached. The pressure on the humble classes during the famine years* caused a very serious lessening in the amounts; but since 1850, a revival has taken place. The deposits of 1850 were £2,148,082.

There are certain articles of consumption, the extent of whose use among a people is generally received as a decisive test as to their standing in civilization. Among these articles, tea, coffee, and paper hold a chief place—the latter prominently and pre-eminently so. The three years ending the 25th March, 1790, the annual average quantity of tea and coffee retained for home consumption in Ireland amounted to 1,776,744lbs—an allowance of about 7oz. to each of the then population. In 1826, our consumption had risen to 3,825,758lbs., or 9oz. per head; in 1840, to 4,827,360lbs.; in 1850, to 7,592,279lbs.; and in 1859 still higher, under the influence of reduced duties, to 11,563,634lbs., or to about 31oz. per head of the population, a rate of progress gratifying to all, but especially so to the wise statesmen whose liberal and free-trade policy contributed so largely in latter years to those results.

Paper we have mentioned as pre-eminently a commodity peculiar to a civilized people. A savage may drink tea, although experience has shown his preference for "stronger waters;" but for paper he has no more use than an inhabitant of the Tropics has for snow shoes or skates. A people must read before they require books or newspapers, and in precise proportion with their proficiency and practice in the art of writing will be their demand for all kinds of stationery, from "cream laid" note to "foolscap." In 1837, the quantity of paper retained for home consumption in Ireland was 3,248,182lbs., or about 7oz. for each of the then population. In 1850, the quantity had increased to 6,272,563lbs., and in 1860 to 8,259,611lbs., which gives 20oz. for each of our present population. This extraordinary progress in so brief a period as twenty-three years, is unquestionably due to beneficent legislation; firstly, to the enlightened liberality of the State in promoting national education; secondly, to the withdrawal of the taxes on knowledge, in the shape of newspaper stamp duties and restrictions; and thirdly, to the introduction of the penny postal system. A few figures showing the results of this latter boon may be interesting. In November, 1839, the last year of the old system, the number of letters delivered in one week in Ireland was 179,931. In November of the following year, the first of Rowland Hill's *regime*, the number was more than double, or 385,672, which we may say was 20,500,000 per annum, or five letters for every two of the population. In 1850, we had a delivery of 38,000,000 per

annum. In 1859, 46,800,000, or sixteen for every two persons in Ireland, and in 1861 the number is still greater, being 48,000,000.

In the session of 1861, the last remaining tax upon knowledge, the duty on paper, was repealed, thanks to the untiring energy and earnest zeal of the eminent statesman and financier, W. E. Gladstone. And now, heavy and onerous as is the pressure of the public burdens occasioned by our vast naval and military armaments, the book and the newspaper, the mediums for conveying knowledge to every hearth, rich and poor, pass free from toll or tax on their glorious errand. To the Irish people this is especially a boon. With our limited newspaper circulation, as compared with that of England or Scotland, every item in the cost of the raw material is comparatively of larger importance, and although, in consequence of the abolition of the duty, returns will be no longer obtainable of the quantities retained for consumption, we may rest assured they will go on increasing at a rate greatly exceeding all previous experience, until at length there shall be no household in Ireland so poor as not to have at least its weekly journal of news and valuable information for the amusement and instruction of the rising generation of Irishmen.

PARLIAMENTARY PROGRESS OF THE DUBLIN MARKETS BILL

ON the 24th ult. this measure came before select committee of the House of Lords, composed of Lords Lyveden (chairman), Ecclesfield, Boston, Palworth, and Delamere. Counsel for the promoters and petitioners, respectively, appeared. Aldermen Reynolds and Lambert, and Mr. Acheson, T.C., attended as a deputation from the Corporation, accompanied by the Town Clerk and Borough Engineer.

Mr. O'Malley opened the case for the promoters in an able and effective speech, urging, as regards the present market that "though the trade of Dublin had increased to an enormous extent, Smithfield remained just as it was in 1665 with this exception, that while in 1665 it was in a suburban district, it was now in the heart of the city. The extent of the market was two acres and two roods. Lately, some additional accommodation had been provided; but the market itself remained precisely as before." Even those who opposed the bill (added counsel) would not, he thought, venture to say that Smithfield afforded sufficient accommodation for the present cattle trade of Dublin, even for home consumption. But even supposing it were large enough—that its approaches were wide enough—and that it had sufficient accommodation—its situation was inconvenient for the purpose of export. Cattle were purchased in that out-of-the-way place, and had to be driven along the quays and through the busiest streets of the city to the North-wall. When brought to the North-wall there was no accommodation for them, and they were often compelled to wait in the street until the sailing of the packet which was to bring them to Liverpool or elsewhere. Comparing this with the convenience and capability of the site proposed by the present bill, counsel proceeded:—"It would be proved that for the purposes of a cattle market for home consumption it was much better than Smithfield, equally convenient for butchers, and would do away with the large cattle traffic through the crowded streets. The approaches were excellent—the terminus of one of the great railways would be in the immediate vicinity, all the steam-packet companies were located in the neighbourhood, and the cattle would be put on board in a proper state for the English market. At no distant period each of the railways running into Dublin would be united, and the whole export traffic of Ireland would go to the North-wall through the medium of the traffic branch. The plans for such a scheme had not been matured, but he pointed to it as a prospective advantage, which the convenience of the public and the requirements of the increasing traffic would force upon the respective companies. It was, therefore, of the utmost importance to have a market on the North-wall.

The Duke of Leinster (the first witness called) deposed to having, in conjunction with Mr. More O'Ferrall, employed Mr. Hemans, C.E., to examine and report upon the best site for a cattle market; did not think the Corporation had the means of providing increased accommodation, and the matter ought to be taken up by a private company; the petition was signed amongst others by Mr. Allan Pollok, one of the most extensive cattle traders and graziers in Ireland; he believed that if the present bill were passed, the scheme would be carried out *bona fide* and with integrity. On cross-examination his Grace stated that the district between the present Smithfield market and the Phoenix Park was not densely populated; Smithfield, as a market for Dublin, was very eligibly situated, but it was not conveniently placed for the export trade, to which he attached great value; the bill did not contain any power to shut up the present slaughter-houses; he should be very sorry if it did.

The Earl of Clancarty—next examined—said that he was the

* And the failure of the Cuffe-street and some other savings' banks causing a feeling of insecurity in these institutions.

proprietor of Ballinasloe, at which two great cattle fairs were annually held; Smithfield market was excessively inconvenient; it was not a free market; the slaughter houses of Dublin, and the lanes and alleys adjacent thereto, were in a very disgusting state; the plan now before their lordships had been very well sifted; one of the principal things which the graziers had to complain of was the want of sheds and of proper accommodation for the cattle while exposed for sale at Smithfield.

Cross-examined—Was not very well acquainted with the cattle trade in the immediate vicinity of Dublin; when cattle were not sold in Smithfield it was customary to send them to fields in the neighbourhood of Smithfield. (The situation of Richardson's fields were here pointed out to the committee.) Was clearly of opinion that a covered market would be serviceable; did not know how much of the London market was covered.

Re-examined—In his opinion the accommodation which the new market would afford would bring additional business to Dublin, and increase the cattle trade.

Lord Crofton examined—Having been informed that the site of the proposed market was very wet, he had examined it, and tested the soil; thought the ground was sufficiently dry at present for a cattle market, but was told that it was proposed to raise the surface; he paid 2½ per cent. commission to the Smithfield salesmen; Smithfield was far too small, and the beasts were so knocked about that they must be either sold or exported to Liverpool; Smithfield was so small and dirty that they could not do so; he thought a great deal of store cattle would come into a large market which were now excluded.

Cross-examined—Was not a director of the Midland Great Western Company, but he was of the Great Northern Company; was not aware whether the tide was in or out on the day he visited the site of the proposed new market; there was water in the ditches at the time, but it did not affect the site; was sure that he saw no part of the site that was six feet lower than the road level; did not know whether it was proposed to bring the market on a level with the railway terminus, or whether it was for drainage purposes that the site was to be raised; thought it was for the former; was not aware whether there was any supply of fresh water at the site, but he was quite sure that if there were not it could be obtained; in his opinion it was next to impossible to enlarge Smithfield, for as well might it be proposed to take down the houses round Stephen's-green for the purpose of enlarging that square; the property round Smithfield was very valuable; it was not a fair way of representing it to call it "old houses."

The Hon. King Harman was next called. Had paid some attention to the subject of slaughter-houses, and very much approved of the *abattoirs* at Brussels; knew Smithfield market well, and was so disgusted with it that he had ceased to send cattle there.

Mr. Hemans was then called, and described the condition of the Dublin slaughter-houses as filthy and most unsuitable; there is one good one where Mr. M'Vey slaughters pigs, but as a rule they are horrible barns, with people going in and out while the cattle were being slaughtered; explained the manner in which he proposed that the new slaughter-houses in connection with the market should be planned; said he believed that a capital of £40,000, with borrowing powers of £10,000, would be sufficient for the new undertaking. The surface of the site would be filled up, and there would be three principal roads to the market. The locality was particularly favourable for extension, and with regard to grass, there were 165 acres at present near the place, and a great deal of it was very good. The last day he visited Smithfield was very wet, and the stench was dreadful.

Cross-examined—The probability was that the export trade north of Dublin would go to other ports from Dublin; had visited four or five slaughter-houses in Dublin, and his principal assistant had visited the rest.

Owing to the illness of Lord Boston the Committee adjourned.

On the reassembling of the Committee on Thursday, the parties consented to proceed with four members, Lord Boston being indisposed. The promoters called as witnesses Sir Percy Nugent, Mr. Denis O'Connor, Captain Thornhill, Mr. Lowe, manager for Mr. Allan Pollok, Mr. Templeton, do., Mr. John Martin, T.C., Mr. Byrne, salesman; Mr. W. Forbes, traffic manager, Midland Great Western Railway; Mr. Binger, do., Chester and Holyhead Railway; Mr. Bateman, C.E.; and Mr. Meagher, vintner, who has fields adjoining the site of the proposed market. This closed the promoters' case. The opponents then examined Lords Cloncurry, Naas, Donoughmore, Mr. Vernon (agent to the Fitzwilliam estates), Mr. Kincaid, &c.; after which the Committee announced their decision, viz., "that the bill should be allowed to proceed," which is equivalent in the Lords to the preamble being proved in the Commons.

A new tomb has been erected over the grave of the author of "The Pilgrim's Progress" in Bunhill Fields Burial Ground, City Road, London.

COMPARISON OF THE MUSICAL FORCE AT RECENT HANDEL FESTIVALS AND AT OTHER GRAND DISPLAYS.

NEITHER at the opening of the 1851 International Exhibition, nor at any one of the musical festivals held up to that time, had a larger musical force been engaged than is now a matter of everyday occurrence at the Concerts of the Sacred Harmonic Society.

The first occasion on which a great advance was made was at the opening of the Crystal Palace, on 10th June, 1854, when about 1,600 amateurs and professors were employed, including thirty double basses. The novelty of this large assemblage excited great interest; and as the music was confined to the measured strains of the Old Hundredth Psalm, "God Save the Queen," and the Hallelujah Chorus, its effect was very striking.

The Paris Exhibition, in 1855, was opened with considerable parade. The music, however, utterly failed. The closing ceremony of the Exhibition (the distribution of medals) was one of the most imposing ceremonials of modern times. Great efforts had been made to render the music a striking adjunct to the rest of the ceremony; but notwithstanding upwards of 1,200 musicians were employed, no effect was produced. The orchestra was placed in an elevated, straight gallery, and the music selected was utterly unfit for such an occasion.*

At the Dublin Exhibition opening, in 1853, a very good musical display took place. A proper orchestra had been built, and on the whole the musical part of the proceedings, although somewhat lengthy, was very successful.

The Handel Festivals of 1857 and 1859 were so similar in their purpose to the coming Festival, that more particular allusion to them is not needed; it must suffice briefly to allude to their orchestral arrangements.

In 1857 the orchestra held about 2,500 performers. It was entirely open at the sides and back, consequently a large portion of the sound wandered away and was lost. In 1859 the orchestra was enlarged considerably, and enclosed to a height of fifteen feet, while over it was suspended an oiled canvas awning, which it was anticipated would remedy the defects so apparent in 1857. This anticipation, from causes not necessary here to enter upon, was only partially realized; the music of Handel at the Commemoration Festival, therefore, although occasionally grand in the extreme, and far beyond any previous attempt, did not, even yet, produce that astounding and overpowering effect of which it was believed to be capable. It then became apparent that to effect all that was requisite to place these great festivals, with their large profits, as a permanent success at the Crystal Palace, the great orchestra must be roofed over. Bearing in mind the construction of the [Crystal Palace, this became a task requiring the most serious consideration. Many were the suggestions thereon. Without entering upon a technical description of the great roof—a duty more properly belonging to journals especially devoted to building operations—which has recently been thrown over the orchestra, it will suffice to say, that it has been accomplished most successfully, as well in regard to musical results as to the manner of its construction and its perfect security. No additional weight has been imposed on the building itself, as the roof is entirely supported independently of the original structure. In truth, it is alleged by the many scientific men, and architects, and engineers, who have inspected the work, that it has added enormously to the solidity and security of the great arched roof of the main building; and it has been stated that this, coupled with the additional iron columns which have lately been added to the front of the centre transept, has added to the present structure eight times the strength of the original Crystal Palace transept.

The want of a proper sounding-board, like this new roof of the Crystal Palace orchestra, was very manifest at the opening of the International Exhibition on the 1st of May last. The number of musicians was only inferior to that engaged at the Handel Festivals. The effect, however, was exceedingly small compared with the strength employed.

In the recent Handel Festival, the amateurs and professors engaged had, for the first time, a properly-prepared orchestra for the exercise of their musical abilities, and the effect was overpoweringly grand.

TRICKS OF TRADE—ADULTERATION OF WHITE LEAD.

TEN samples of white lead have recently been examined for a public board in this city, in the laboratory of the Museum of Irish Industry, and all the samples were found to be adulterated. This hint may prove of benefit to painters and other purchasers of this article, whose best security against imposition will be to invest at a respectable house.

* Our French neighbours will, doubtless, remedy this objection at the coming Exhibition, which promises to eclipse all others.

EXHIBITION CHIPS.

DECLARATION OF THE PRIZES TO EXHIBITORS.—The declaration of the awards of the juries at a state ceremony on Friday, 11th instant, at 1 o'clock, will be made by an international representative body of royal and distinguished personages, specially named by the various nations which have taken part in the Exhibition. The Queen has named His Royal Highness the Duke of Cambridge, K.G., as her Majesty's representative to receive and distribute the awards to the exhibitors of the United Kingdom and its colonies and dependencies. The special representatives of foreign countries will receive and distribute the awards to foreign exhibitors. The various ceremonies will take place in the Exhibition Buildings and in the Horticultural Gardens, which will be treated as a whole for that day. The special representatives will be received by her Majesty's commissioners on the Upper Terrace of the Horticultural Gardens, if the weather be favourable; if unfavourable, in the Conservatory, and the international juries will then deliver their awards to the special representatives. The special representatives, after receiving the awards, will pass in procession along the arcades to the Exhibition Buildings, and at various stations will deliver the awards to the chairmen of the British class committees, to the colonial commissioners, and to the foreign commissioners in or near those parts of the buildings where the principal objects of each class or country are placed. Upon the arrival of the special representatives at the different stations for distributing the awards, the national airs of the respective nations will be played by military bands, British and foreign. After the distribution, etc., the procession will assemble again on the Upper Terrace, when "God Save the Queen" will be performed by all the military bands. The public will be admitted between the hours of 10 and 12-30 by season tickets or by special tickets to be purchased before the 8th instant at 5s. each; on and after that day the price will be 7s. 6d. each. Tickets will be ready for issue on the 30th June. Exhibitors who may not have season tickets, may obtain a free ticket of admission upon personal application to Mr. Thompson on the British side, and Mr. Owen on the foreign side, on or before the 8th instant.

LAW PROCEEDINGS ON A BUILDING CONTRACT.

A BUILDER named Cuthbert, in the County Wexford, instituted an action against Mr. James J. Scott, a gentleman residing in that county, and the land agent of the Earl of Courtown, to recover a balance of about £160 he alleged to be due on foot of a contract entered into in June, 1859, to erect a small house or cottage for the defendant at Courtown Harbour, and for extra work outside the terms of the contract. Defendant denied that there was anything properly due to the plaintiff over and above a sum of £78, which he lodged in court. It appeared that plaintiff received from defendant plans and specifications prepared by Messrs. Deane and Woodward, architects, who advertised for contracts to execute the work in question, and, according to those plans and specifications, he ultimately entered into a contract with the defendant to execute the work for a sum of £487. The allegation of plaintiff now was, that he performed his agreement, and did certain extra work, and that a sum of at least £160 was still fairly due and owing to him; while, on the part of the defendant, it was alleged that plaintiff was nearly paid, and that nothing whatever was due to him beyond the sum lodged in court.

Verdict for the plaintiff for £230 and costs.

ST. KILLIAN'S ROMAN CATHOLIC CHURCH, MULLAGH, CO. CAVAN.—This beautiful church, the nave of which was commenced in 1857, and finished in 1858, has recently received the addition of a chancel. The whole was built from the designs of the parish priest, the Rev. Mr. Conaty, by Mr. McGinnis, contractor, of Tullyvin. The nave is roofed with wood panels, arranged with great taste, and so disposed as to give height and lightness. At the west end is a tower 80 feet high, surmounted by four pinnacles, in which hangs a rich-toned bell, cast by Mr. Murphy of Thomas-street, Dublin. The east ends of the nave and chancel are also finished with pinnacles, as well as the south-west porch. The dressings are of cut sandstone, the delicate and varied tints of which add much to the picturesque effect of the building. The east window and altar, which is of Caen stone, inlaid with enamel, are the work of Messrs. Barff, and Co., of Dublin; and the reredos of wood and inlay is also from their establishment. The length of the church is 132 feet, and is capable of containing about 2,000 people. Much yet remains to be done to carry out the original design of the reverend pastor, and it is to be hoped that he will receive all the help he needs from those for whom he has done so much. We understand that the opening is to take place on Sunday, July 6th, and that probably an excursion train will leave Dublin for Kells, a place highly interesting to all admirers of national architecture and decorative art.

MEMS FROM THE IRISH ROLLS.

Arrival of the Lord Lieutenant in 1588.—"Memorandum of Sir William Fitz Williams having arrived at the Ring's-end, in the haven of Dublin, about the hour of six of the clock of the morning of the 23rd of June, being Sunday, 1588; and on the Sunday next following, being the last day of the month, having repaired to the Cathedral of the Blessed Trinity in Dublin, presented Her Majesty's patent to him granted, of the office of Governor of the Realm, which being read, the Right Worshipful Sir Nicholas White, Master of Her Majesty's Rolls—the said Sir William solemnly taking his oath upon his knees, at the hands of the Lord Archbishop—the sword was given to him by Sir John Perrot, late Governor—divers and sundry of the nobility being then present."

"Memorandum of Sir John Perrot, having taken boat at the Merchant's-quay, Dublin, the 2nd of July next ensuing, about three of the clock of the afternoon, and so departed into England."

Charter of the Carpenters of Dublin.—"Memorandum of there having been on the 26th February, 1583, in the 26th year of the reign of Queen Elizabeth, produced before the Lord Archbishop of Dublin, a writing, written in Chancery-hand, and by them alleged to be their Charter, not having the great seal attached, yet bearing the print of a parcel of a seal of Credit, most likely seeming, and thought to be the privy signet used in that time; which writing or Charter, the Master and Wardens humbly requested to be enrolled, and thereupon an exemplification to be made; which was accordingly granted by the Lord Chancellor."

"Charter of Incorporation of the Master and Wardens of the Carpenters of the city of Dublin."—March 10; Henry 3rd.

NEW PATENTS.

LIST of Letters Patent which passed the Great Seal on the 11th, 17th, 20th, and 24th June, 1862. Byrne and Lambert, Agents, 4, Lower Ormond-quay, Dublin:—

W. W. Godfrey, for "An improved fastener or protector for Albert guards."

J. Walker, for "Improvements in the means or apparatus for indicating the speed of vessels, and for taking soundings."

R. Hornsby, for "Improvements in apparatus for thrashing, elevating, cleansing, and separating grain, and in apparatus for elevating straw."

J. Cluubb, for "Improvements in apparatus for displaying or exhibiting jewellery and other valuable articles in glass cases."

E. E. Perea, for "An improved composition for cleaning and revivifying wollen clothes and other fabrics, and the colours thereof."

R. Wailes, for "An improved tool or apparatus for cleaning windows and glasses."

J. Shepherd, for "Improvements in apparatus for cleansing steam boilers."

T. Simmons and T. Timmons, for "Certain improvements in urns or vessels for holding and supplying hot water, tea, coffee, or other liquids, separately or conjointly, as also in stands for the same."

R. Needham, for "Improvements in apparatus for cleansing steam boilers, and lubricating the pistons of steam trap."

J. A. Knight, for "Improvements in machinery for dressing mill-stones by means of a diamond-cutter."

A. V. Newton, for "Improved electrical apparatus applicable to the lighting of gas."

THE ELECTRIC TELEGRAPH SUPERSEDING THE MOUNTED POLICE.—We (*Freeman*) are enabled to state that within the last few days a proposition has been laid before the Irish executive of a very important nature. It is proposed to connect the police barracks of this country by telegraph wire, which will enable the constabulary the moment they hear of an agrarian or other crime being committed, to encircle the district, and intercept the offender before he has time to make his escape into some distant part of the county, which is the usual plan, for murders are committed in most cases by strangers to the district. The substitution of the electric telegraph will render totally useless the mounted police, which are now maintained at a cost of forty thousand per annum.

THE WORKS AT ST. PATRICK'S CATHEDRAL.—Messrs. Murphy and Son, the contractors for the vast works comprehended in "the Guinness restoration" of this venerable national building, are employing "the Forest of Dean" stone—the most suitable in the three kingdoms for the purpose—for the flagging of the walls of the nave, aisles, and transepts. The celebrated quarry which produces this material, is situated at Coleford in Gloucestershire. Mr. Lyons, of No. 26 (late of 17), Lower Gardiner-street, is the Proprietor's Agent in Ireland.

THE INTERNATIONAL EXHIBITION.

On the 24th ult. there was a more numerous attendance at the building than on any day since the opening, admissions by payment being 61,311, by season tickets, 4,260; total, 65,571. The return home was quite as wonderful a sight in its way as even the return from the Derby. As to the question whether the Exhibition will pay, the *Times* offers the following calculations:—The total sum required to wind up with satisfaction to every one, and probably leave a balance of some few hundreds, is £545,000. The Exhibition has still ninety-eight days to remain open, so that if the daily receipts continued throughout as low as they had hitherto been, the commissioners would only receive £254,000 in addition to the £220,000 they have already in hand. This sum would clear the guarantees and all expense, but would leave Messrs. Kelk and Lucas with only £29,000 instead of £100,000; but if they go on as they are doing now, every one will be paid in full, and some £10,000 remain in hand. The Exhibition is, however, most steadily rising in popular favour, and if the receipts advance, as the traffic managers of the railways say they will do, the commissioners will wind up triumphantly with £70,000 or £80,000 in hand.

RAILWAY ACTIONS.

In the Court of Common Pleas, Dublin, at Nisi Prius sitting, a Mr. Donohoe, cattle dealer, obtained a verdict of £500 against the London and North Western Railway Company, for personal injuries sustained in a collision at Wolverhampton.

At same time, and for same affair, a Mr. Dunne, likewise a cattle dealer, obtained another verdict for £700.

The Dublin and Drogheda Railway Company were defendants, in Court of Exchequer, in an action for damages, laid at £500, by one Mary McDonnell, for the loss of her husband, killed by an engine at Howth. The company denied negligence, and pleaded that the deceased was intoxicated. Verdict for the defendants.

Mr. Lloyd, a horse dealer, sued the Waterford and Limerick Railway, for £800, for alleged damage to 17 horses, three of which died in consequence of the manner they were conveyed from Limerick to the Junction. Defendants pleaded no negligence on their part, but on plaintiff's own. Verdict for defendants.

RAILWAY NEWS.

The preamble of the Dundalk and Enniskillen Railway Bill, one portion of which relates to "the extension of the Dundalk line from the present terminus in the town to the Steampacket Quay, and to a level crossing, necessary (unopposed); and another to certain works at Londonderry (opposed by the Irish Society, the Ulster Railway Company, and the Finn Valley Railway Company) has been declared proved. Mr. Barton, Civil Engineer, gave formal evidence on the subject of the extension of the Dundalk line to the Steampacket Quay and the level crossing.

The object of the Enniskillen, Bundoran, and Sligo Railway Bill, also brought before select committee, is to authorise an extension of the line from Bundoran to the town of Sligo. The grand jury of the county Sligo objected to a particular clause, contending that in their capacity as grand jurors they were the legal guardians of the roads and bridges of their county, and that the county surveyor on their behalf should superintend the laying out and construction of particular works, by which their rights might otherwise be infringed upon. Mr. Sharkey handed in a clause having for its object to give the county surveyor the supervision applied for by the grand jury. Mr. Hemans, Civil Engineer, gave formal proof on behalf of the promoters. Mr. Venables opposed the clause. The committee, after considering the matter, rejected the clause, and the preamble of the bill was declared proved.

It is expected that the Kilkenny Junction Railway will be proceeded with as far as Abbeyfeix immediately.

The receipts of railways in the United Kingdom for the week ending 14th June, compared with the corresponding week last year, show an increase of 295 miles, and of £27,132. In the receipts the increase arises entirely from the passenger traffic to the International Exhibition.

The ceremony of turning the first sod of the Belfast, Holywood, and Bangor Railway was performed on the 24th instant, by the chairman, Mr. R. E. Ward, D. L., J. P. Mr. Lanyon, C.E., (Mayor of Belfast), is engineer in-chief, and introduced the contractors, Messrs. Edwards, to the Company assembled. As is usual, a handsome wheelbarrow and spade were presented by the contractors to the officiating celebrant. The line will be about eight English miles in length.

Mr. Napier's lecture on "Edmund Burke" has been so successful that the publishers have produced a second edition.

Notes of New Works.

The foundation stone of a new Presbyterian church at Creggs has been laid by Allan Pollok, Esq. (the proprietor of the great monster steading near Ballinasloe) of Lismany, in presence of a large concourse of people.

The Board of Superintendence of City of Dublin Prisons are about executing certain works at Grangegorman Penitentiary, including large iron tank, heating apparatus for 126 cells, several water closets, lavatories, &c., &c. Tenders to be lodged on this date.

The court-house, Wexford, is to be altered improved, and enlarged according to drawings by Mr. J. B. Farrell, C.E., County Surveyor.

Mr. Theed has just executed a statue of Hallam, which is about to be erected in St. Paul's Cathedral.

The ancient order of the Capuchin friars, who have an unsuitably constructed church in Church-street (most probably the origin of the nomenclature), have decided on a site in North King-street, for the erection of a new building, with house for the brotherhood adjoining.

Miscellaneous.

Mr. M. Angelo Hayes' fine picture of "The Soldier's Funeral," now exhibiting at the Hibernian Academy, has been selected by Mr. Dalton as the £100 prize which he won at the Art Union drawing on Monday.

Mr. Nugent Robinson's paper, which he read at the recent session of the Social Science Association, held in London, on the necessity that exists in Dublin for the adoption of the model lodging-house system, and in which he advocated the formation of companies on the same principle as those established in London, will be published shortly by the society.

The twenty-three pieces of china in the hall of the South Kensington Museum are valued at £37 000. They are marked "H." and "D."—the initials of Henry IV. of France, and Diana of Poitiers, and fifty-nine pieces only were made.

Messrs. Osmond and Son, sculptors, of this city (Salisbury), have just erected in Whippingham church-yard, Isle of Wight, a monument of a cross on three steps and circle, with the following inscription:—"To the memory of George Frederick Jones, born 1820, groom to Queen Victoria, and the faithful attendant during thirteen years of the Royal children, by whom the stone is erected, 1862."—*Wiltshire Mirror*.

INCREASE OF PAUPERISM IN GALWAY.—On the 1st of June, 1861, there were 359 inmates in the Galway poor-house; and on the 1st of June, 1862, there were 593, showing an increase of 246 since this time twelve months.

SAINT CATHERINE'S CHURCH, MEATH-STREET, DUBLIN.—A large five-light stained glass window is in course of erection over the high altar in this church, and the chancel is being decorated in stereochromic painting. Both these works are being executed by Messrs. Barff and Co., of Dublin. The chapel yard is being well flagged, and enclosed by massive iron railings, cast and fixed by Mr. Laurence Murphy, Eagle Iron Works, Dublin. The Very Rev. Canon Farrell is most energetically setting about the completion of this beautiful church, which was built by the late respected Dr. Lapham, from the designs of Mr. J. F. McCarthy, architect. The high altar, which is much admired, was the work of Mr. Lane, of Brunswick street, Dublin. A notice in detail will be given in a future number.

TRADESMEN.—If a tradesman would like to become a bankrupt, he need not drink or gamble away his money; he need not live fast and eat his chickens before they are hatched. Small neglects will lead to straits, and poverty, and ruin. It works on this principle—reputation is property, and when this is gone, all is gone; and reputation is lost more frequently by a succession of trifling neglects than by a single deed of downright dishonesty, or by one act of outrageous imprudence. In business, simple forgetfulness is reckoned a crime, and is also punished as such. A man forgets to meet a bill when it becomes due. It is returned with expenses, and the dishonoured bill reflects upon the tradesman's trustworthiness. In the creditor's ledger the transaction is recorded, and it is there as a blot upon his reputation. Another forgets to execute an order within the time agreed upon. The goods are not sent in, and offence is taken. For a while such forgetfulness is borne with; but a repetition of small neglects wears out the patience, and custom is withdrawn. Carelessness eats away confidence; and at length reputation decays, standing is lost, and a living is forfeited.—*British Workman*.

Mr. Scott Russell writes to the *Times*, claiming for his target the merit of having resisted the shot fired from the great gun weighing twelve tons, and that therefore it is practically shot-proof.

FOOTE AND SHERIDAN.—Foote has indeed rescued one obscure skull from oblivion, and Sheridan has immortalized the funeral of Richardson, but there are very few for whom a pun has thus obtained from Mr. Timbs the right of resurrection. Besides, the skull on which Foote punned was that of a very intimate friend who had an unusually strong claim on him. We read that, on hearing of Sir Francis Delaval's death, he burst into tears, and refused for two days to admit any one to his room. On the third day he mustered up courage to ask, with swollen eyes, "What time the burial would take place?" "Not till next week, sir," was the reply; "the surgeons are first to dissect his head." "What do they expect to get there?" said the disconsolate Foote; "I have known poor Frank's head these 25 years, and I could never find anything in it." The story told of Sheridan, in connection with Richardson's funeral, is so strikingly characteristic, and so illustrative of his extraordinary powers of unpunctuality and persuasion, that, in spite of its improbability, we are inclined to believe it true. It certainly rests on better testimony than a vast number of the jokes and eccentricities of which Sheridan has been made the hero. The story is, that being invited to attend a funeral, he arrived too late; but that he actually succeeded in persuading the clergyman to perform the ceremony over again in order that he might have the opportunity of paying the proper tribute of respect to his deceased friend. It is not said whether the body was disinterred in order to give full theatrical effect to the most telling part of the service, but we have no doubt that Sheridan's motion was exactly proportioned to the occasion.

THE FOOD OF YOUNG CHILDREN.—The food of young children should be simple and unexciting, because their nervous and circulatory systems are readily irritated; but it should be nourishing and abundant. During the period of growth the demand for the additions to the growing frame, and from the great physical activity for which all healthy children show so strong an inclination. It is not true, as is often asserted, that most children are overfed. Children can scarcely be restricted in food without loss, provided it is judiciously chosen, and their exercise is sufficient; and it is to errors in these two respects that those evils are usually due which are wrongly ascribed to overfeeding. Many children suffer from being brought up under the mistaken idea that an invalid diet, so to speak, is the most desirable one for them; and, at the very time when they are most in need of abundant and nourishing food, it is doled out to them in limited quantity, and still much more often in deficient quality. I have met with many families where the children were only allowed to have meat two or three times a week, and lived principally upon bread, rice, sago, puddings, and similar food—the fact being overlooked that such articles contain, in a large bulk, but a small proportion of those compounds which go to the repairing and adding to of the most important tissues of the body. Such food is, of course, valuable when taken in combination with the more nourishing kinds, because it supplies that bulk or quantity which is essential to healthy digestion; but an exclusive diet of it, though it may be very suitable to the Brahmins of an Indian climate, is wholly inadequate to supply the needs of the active, growing frames of English children. Its results I have found to be the same. If the children are able to resist the attacks of disease, they grow up to be small, puny, feeble men and women. There is another form in which children are very often insufficiently fed—namely, when they are allowed to eat at any time, and of almost any food which inclination or fancy may direct. Their appetite for proper and natural food is thus perverted, and their stomachs are loaded with what, so far from being useful, is positively destructive. It would be well if parents would recollect, that it is not what is eaten merely, but what is digested and assimilated, that supports life and growth, and that a child may easily be starved without ever feeling hungry.

THE COTTON DEARTH.—The excitement in the cotton market continues to increase, and the transactions were extremely large, at an advance of $\frac{1}{4}$ d. to $\frac{1}{2}$ d. per lb. on improved prices. It is considered that if the American Congress should pass the clause in a bill now before them for the imposition of an export duty on cotton equal to $\frac{1}{4}$ d. per lb., and which is devised in order to make England and Europe pay their quota to the civil war, it will prove a highly serviceable stimulus to India, Egypt, and the other cotton-producing countries, who will thus be offered a permanent bountif, such as has been alleged to be essential, to induce them to enter with confidence into competition with America.

The Emperor of the French has ordered a wooden model of the façade of the new Opera House at Paris to be placed upon the destined site of that edifice, that the Parisians may judge of their future monument. As the model is to be of the same size as the building, it must be a costly and cumbersome experiment, and has much perplexed the authorities; but needs must when Napoleon drives. The Italian Opera House is for sale; the upset price is £60,000. It is rumoured that Mr. Lumley will be the future *impresario*.

MANUFACTURES IN PHILADELPHIA.—There are in the city of Philadelphia 6,244 manufacturing establishments, employing 70,281 males, and 80,215 females. The amount of capital invested is 74,486,791 dols. The value of the raw materials used is 73,662,872 dols. per annum; and the value of products 141,138,835 dols. The value of the importations in that city in 1861 amounted to 7,326,924 dols., and the exports to 10,199,275.

OPPOSITION TO THE FIRST RAILWAY PROJECT.—As a specimen of the argument and declamation by which the railway schemes of George Stephenson were, in the first instance, met and assailed, let us (*Building News*) take an extract from a speech made before a select committee of the House of Commons in 1826, by Mr. Harrison, then an eminent parliamentary counsel:—"Every part," says he, "of it is scheme (the Manchester and Liverpool Railway), shows that this man (George Stephenson) has applied himself to a subject of which he has no knowledge, and to which he has no science to apply."

When we set out with the original prospectus, we were to gallop at the rate of twelve miles an hour, with the aid of the devil in the form of a locomotive, sitting on the fire-horse. But the speed of these locomotives has slackened. The learned sergeant would like to go seven, but he will be content with six miles an hour. *I will show that he cannot go six.* Practically, or for any useful purposes, they may go something more than four miles an hour. The wind will affect them; any gale of wind which would affect the traffic on the Mersey, would render it impossible to set off a locomotive engine (!), either by poking the fire or keeping up the pressure of steam. A shower of rain retards a railway, and a snow storm entirely stops it." We (*Building News*) need not at this time of day pause to comment for a single moment on the remarks of Mr. Harrison. They are curious, and they serve to show the ebb tide of scientific and mechanical knowledge which then prevailed. The flood tide has risen since, and Mr. Harrison has enabled us to ascertain the depth from which the tidal wave has sprung. The greatest possible obstruction was offered, in 1831, to the proposition for forming a line of railway from London to Birmingham, and from speeches made in both houses of parliament, and pamphlets published out of them, it would be easy to cull passages at which their living authors would blush, and our readers would heartily laugh. Those speeches are chronicled in Hansard, whilst the bulk of the pamphlets have gone to the butterman, and there they may rest.

MEDAL OF THE PRINCE CONSORT.—A medal by M. Charles Wiener, medallist and sculptor to his Majesty the King of the Netherlands, has just been struck in memory of his Royal Highness the Prince Consort as the founder of the International Exhibitions of 1851 and 1862. It is about three inches in diameter and one-eighth of an inch in thickness. The obverse represents the Prince as he appeared three months before his death, when, it has been said, he looked as well as at any period of his life. No photograph or engraving we have seen presents a more striking likeness. The lines are as sharp and clear as those of a steel engraving, and the contour of every feature in the fine countenance of the late Prince are brought out with wonderful delicacy and faithfulness. The hair, whiskers, and moustache, which always present a difficulty to sculptors in bas relief, are particularly well managed. The reverse of the medal bears the words "Founder of the International Exhibitions of 1851 and 1862," surrounded by a wreath of oak leaves and acorns, and has a very high merit as a work of art.

NOTICES.

MR. JOHN J. LYONS, architect, (proprietor and editor of the *DUBLIN BUILDER*) has left his residence, No. 26, Lower Gardiner-street, to attend the Architectural Conference, in London, on the 2nd instant.

Payments (by Post-office Orders, Cheques, &c.) for Advertisements and Subscriptions to this Journal, are to be made to the Publisher, Mr. PETER ROE, 42, Mabbot-street, who will promptly acknowledge same.

The attention of Manufacturers, Machinists, Civil and Mechanical Engineers, Patentees of Inventions applicable to Architectural, Engineering, Building and Sanitary purposes, &c., &c., is earnestly directed to "THE DUBLIN BUILDER," as a most desirable medium for Advertising, commanding, as it does, an extensive circulation amongst the classes for whom such announcements are more particularly intended.

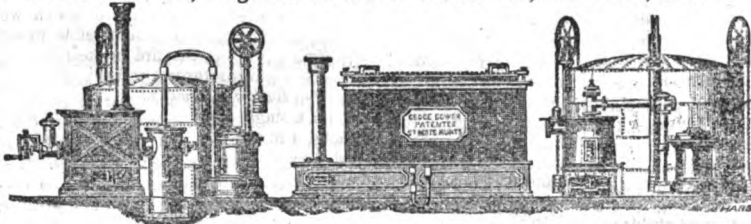
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 gineers and the Public to the above description of
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VOL. IV.—No. 62.

ARCHITECTURE AT THE ROYAL HIBERNIAN ACADEMY.

IT might not have been unreasonable to assume, that with the infusion of new "Architectural" blood into the councils of this Institution, new vigour—resulting in the rescuing of that department of the Exhibition from its habitual degradation—would have been a characteristic of the many reforms so much needed, and so earnestly expected as a consequence of the painstaking investigation of the Royal Commissioner. However, unfortunately it is not so, for, either quantity or quality regarded, the display of Architectural drawings in the Academy's Exhibition this year, is as insignificant as it had been on any previous occasion, and more so than on many. Plainly speaking, this state of things is most culpable, and the fault, in an important degree, is traceable to the newly-elected Architect members of the Academy, who had no business permitting themselves to be enlisted in its ranks, if they were not prepared to contribute their *quota* to the advancement of that department of which they are presumed to be the representatives in the Council and before the Public. Better expunge the word Architecture altogether from the professions of the Academy, than preserve it to be a mere laughing-stock to the present and future generations; or better supersede the indolent or apathetic members by such others as really will prove of practical benefit. The alternative would be a pleasant one, no doubt, and none more than ourselves would regret its adoption, but in faithful performance of a public duty, we are compelled to let personal considerations merge, and suggest such a course as must prove most conducive to the general interest. We have so often before drawn attention to this, that the repetition becomes tiresome; but we sincerely trust that even yet—if remonstrance will not, self-conviction may prevail, and that with the opening of next year's Exhibition may be presented a very different picture. Of the Architect R.H.A.'s three are contributors—an equal number being delinquents; but even to the former we have very little reason to offer congratulation for the merits or the extent of their contributions. Mr. Mc'Carthy has two subjects (hung in the Ante-room among the water-colour drawings)—viz., a perspective of the new Roman Catholic Cathedral, now erecting at Armagh under his superintendence, and a group of conventual buildings at Kilrush. The design of the latter, which is in Early English style, has many quaint and picturesque points; the general composition and the drawing, moreover, is notable. With the former we shall soon make our readers better acquainted by illustration. We hope, however, that this architect's extensive practice will furnish a greater number of subjects for the next Exhibition. The total number of drawings in the Antique chamber—a portion of which is devoted to Architectural drawings—is eleven, accounted for as follows:—

No. 453, to left of doorway, is an elevation of Mr. Geoghegan's design for the proposed College of Surgeons (and submitted in the competition decided in favour of Mr. Murray), and already referred to in our notice of the drawings when to view at Sir Patrick Dun's. A little more labour would have been judiciously bestowed on the colouring of this, to entitle it fairly to a place in an artistic exhibition. The same gentleman contributes a perspective of exterior of "St. Mary's Institution for Catholic Blind Females" (No. 404), an engraving of which we gave in the DUBLIN BUILDER for June 15, 1861. Mr. Barre of Belfast has "a sketch" design for front of St. Mary's Abbey Church (No. 452); also a drawing of the Crozier Memorial, Banbridge—a work acquired in competition, which has also been illustrated in this journal recently.*

Of the former, we must note that—at least as shown by the perspective—the central tower and spire seem of overwhelming proportions, compared with the gabled projections at either side, and that as a drawing the author very properly appends the word "sketch" thereto; of the latter, that while the colouring is unquestionably well handled, the artist seems to have indulged in a

freak of fancy, by depicting in the back ground the elements in terrific conflict. There are some very original and noteworthy points in the design for the pedestal, the flying buttresses with Polar dogs recumbent thereon, and accessory portions being boldly and effectively treated.

Mr. J. S. Mulvany (one of the Academicians) exhibits etched perspectives of a mansion, a marine residence, and a gate lodge, erected for members of the Malcomson family at Portlaw. These, we understand, have been prepared by Mr. Raffles Brown, with whose draughtsmanlike ability our readers are familiar; but the drawings have been sent to the Exhibition—we presume from want of time—in a less complete state than might have been desired. Either as a drawing or a subject the lodge is no acquisition. We have no doubt, however, that if against next year Mr. Brown's leisure hours are employed, either on his own or Mr. Mulvany's behalf, he will fully sustain—if not excel—the artistic repute he so worthily earned not long since, in an especial manner, by the manipulation of his much admired design for St. Andrew's Church. Of Nos. 456 and 492, representing respectively designs for the Boyd Monument and Front of the proposed College of Surgeons, Mr. Drew, a rising young Architect, is the author. Two of the sketches for the former are of Ancient *Cross* character, with pyramidal shafts—hardly suitable however—a third consisting of lofty square tower in three stages—with trefoiled coupled openings in the upper—rising from a battered plinth, and capped with a tall weathered stone roof, terminated by a vane; the fourth of shorter proportions, square plinth, a gable with arched open for a tablet showing on each face, and a pyramidal roof springing from the intersections. Either of these would have been far preferable to the work as executed. These sketches are vigorously treated, as also is the design for the College, as well as being a remarkably meritorious Architectural composition. We cannot, however, disguise our conviction, that it does not bespeak its purpose, and that without reference to the catalogue, one might reasonably suppose that it was intended as the façade of a Bazaar, an Assembly hall, or other structure far removed in character from a Collegiate. Mr. Drew, however, must not be discouraged; he has—to use a vulgar but expressive phrase—"the stuff in him," and if he apply it judiciously, he will do well. We must here express a regret, that this gentleman's ability was not employed for the Exhibition by Mr. Murray, R.H.A.—with whose office he is associated—on some one drawing of that Architect's numerous public works.

Mr. Patrick Byrne saves himself from being included in our restrictions relative to non-contributing R.H.A.'s—though for his advanced age there would be fair consideration; he has one small tinted drawing of the unfinished front of St. Francis's Roman Catholic Church, Merchant's-quay, showing a pretty campanile, which we hope to see erected some time.

In the Ante-room there are a couple of well-painted water-colour views by J. Dobbin, in which Architectural features are prominent; we allude to 395, "the City of Burgos, Spain," and 429, "Antwerp," in which the Cathedrals of each show out with remarkable effect. If our local Artists who are capable of dealing with Architecture even pictorially, would select an occasional subject of that class, they would render signal service to a shamefully neglected department. When we contrast the Architectural Exhibition here in its integrity, even with the remnants of that at Conduit-street, London, closed some weeks since, and which, in our attendance at the Conference on the 2nd inst., we had an opportunity of viewing, the balance is amazingly in favour of the latter. What a pleasing reflection for Irish Architectural practitioners! Will they permit it to continue so? Not if we can help it.

ARCHÆOLOGICAL INSTITUTE.

At the meeting of the Archæological Institute, on the 6th inst., Lord Talbot De Malahide occupied the chair. A remarkable discovery, at Bath, of a Roman inscription on marble was announced. It is dedicated to Minerva, and the letters are well cut, in a bold simple form of very early date. A communication was read from Mr. Clayton of Chester, the possessor of the remarkable station of Cilurnum on the Roman Wall, in which was given a lucid account of the massive abutment on the eastern bank of the North Tyne forming the land pier in direct correspondence with the piers in the river bed and that on the western bank before known, and described in the well-known history of the Roman Wall, by the learned Dr. Collingwood Bruce. Various plans, antique relics, examples of ceramic art, &c., were exhibited. Amongst other excursions, it is proposed to visit Malvern, Evesham, Pershore, Tewkesbury, &c.—Professor Willis has promised a lecture 'On the Architectural History of the Cathedral'; the Dean of Chichester had undertaken a memoir illustrative of the early ecclesiastical history of Worcestershire; and many other memoirs, valuable as helping to illustrate the topography and manufactures of the county and city are in preparation.

* See the DUBLIN BUILDER for April 15, 1862.

THE ARCHITECTURAL CONFERENCE IN LONDON.

A MEETING of delegates from the various professional Architectural Societies was held, according to announcement, in the Rooms of the Architectural Union Company, Conduit-street, Regent-street, on the 2nd instant.

Mr. THOMAS AUSTIN, Architect, was called to the Chair; and there were present as delegates (besides spectators) from the London Association—Messrs. Thomas Blashill, T. Roger Smith, and W. W. Bunker.

Institute of Scotland—Mr. John Lessels.

Birmingham Association—Messrs. J. H. Chamberlain and A. B. Philipson.

Bristol Association—Messrs. H. Lloyd and Edw. W. Godwin.

Liverpool Association—Messrs. W. Weightman and S. M. Hay.

Glasgow Association—Mr. Angus Kennedy.

Manchester Association—Messrs. Lawrence Booth and Alfred Darbyshire.

Northern Association—Messrs. Thomas Austin and J. P. Pritchett.

Institute of Ireland*—

Mr. Pritchett, who acted as Honorary Secretary *pro tem.*, explained the position in which the preliminary proceedings stood, and read extracts from the correspondence, by which it appeared that, besides the societies sending delegates, he had communicated with the Royal Institute of British Architects and the Edinburgh Association on the question of their joining; and also with gentlemen at Hull, Plymouth, and Limerick, who were anxious to form associations to become part of the Alliance. He also explained that this movement had been the means of resuscitating the "Bristol Association," and it was hoped the same would be the case with the "Institute of Architects in Ireland," to represent which, and the profession in that country generally, though not as an officially-appointed delegate from that body, Mr. J. J. Lyons (Proprietor and Editor of the DUBLIN BUILDER) had come over specially.

After passing a preliminary resolution, to the effect that some organization was needed to unite the associations, it was resolved—"That an Architectural Alliance be formed, and that the following be the rules":—

RULES.

1. That it be called the "Architectural Alliance."
2. That although for the present it is desirable to confine it to the United Kingdom, the extension of its operations to other countries shall be kept in view.
3. That its object shall be to promote united action amongst the existing Architectural Societies, and to aid the establishment of new local societies.
4. That it shall take cognizance of all matters affecting the interests of the profession and the professional practice of Architects.
5. That all Architectural Societies formed on a professional basis, giving in their adherence on or before the 15th day of August, shall constitute the nucleus of the Alliance, and in future all other such societies shall be eligible for election in the mode hereafter provided.
6. That an Annual Meeting shall be held in London, on the first Wednesday in July in each year, and other meetings may be held as hereafter provided.
7. That the business of the Alliance shall be conducted by delegates from each society in the Alliance. The delegates from the various societies which now or hereafter join the Alliance shall not exceed () members from the Royal Institute of British Architects, 4 members from the London Association, and 3 from every other Association.
8. That any society wishing to join shall be proposed in writing by a society already in the Alliance through its secretary; that such proposal, together with a copy of the rules of such society proposed, shall be sent to the Secretary of the Alliance, at least

* It may be well here to explain that, with the view of saving the Architectural Profession in Ireland from the stigma of being totally unrepresented at the Conference in question, the Proprietor and Editor of this Journal (Mr. J. J. Lyons, Fellow of the late Institute of Architects), addressed a circular not only to each of the members of that body, but to all the professional practitioners in Ireland (whose names he could learn), to the effect, "That some one or other Architect should proceed to London as a delegate on this occasion," and that his expenses should be paid out of the fund, exceeding one hundred pounds, which still lies in bank to the credit of the Institute. In reply thereto numerous letters were received, fully evidencing individual approval of the suggestion, and consequently, in the absence of collective action being taken thereon, and of a better representative coming forward, Mr. Lyons himself proceeded to London at his own expense to attend the Conference, a fact which will account for his name being introduced in the particulars above given, and which, were it not for such visit, could not have been here presented.

one month before the Annual Meeting, and shall state the title of the society proposed, and the names of its officers. The name of the society so proposed shall be inserted in the notice convening the meeting, when the election or rejection of such society shall be decided by ballot.

9. All members of each society in the Alliance shall have the right to attend the meetings of the Alliance, on introduction personally by any delegate, or by card of introduction from one of them; but delegates only shall have the power to speak or vote.

10. Questions may be brought under the cognizance of the Alliance by any allied society writing through their secretary to the Secretary of the Alliance, who shall then ascertain the views of the other allied societies, and report to each the general feeling. On the requisition of not less than two-thirds of the councils or committees of the various allied societies, the secretary shall call a special meeting, in London, of the delegates for the consideration of any question that may arise.

11. That the officers of the alliance shall prepare a report of the proceedings of the alliance, for each year, to be laid before the annual meeting, and it shall be competent for such meeting to alter or amend it, and to order it to be printed if they see fit.

12. That all votes, except as before provided for, shall be taken by show of hands, unless any delegate shall before or after such show of hands, demand a poll; in which case the poll shall be taken immediately by voting papers, including proxies.

13. Any delegate unable to attend any meeting may exercise his vote by proxy through any other delegate.

14. That every society publishing a report of its proceedings, or of any paper read before it, will be expected to present a copy to every other society in the alliance.

15. That any member of a society in the alliance shall have the privilege of attending (but not of speaking or voting) at the meetings of any other society in the alliance, provided such member be introduced by letter from one of his own delegates, or personally by a member of such society.

16. That each society shall pay the expenses of its own correspondence, and shall make arrangements with its delegates as to their expenses; and the expenses of the alliance (stationery, postage, printing, &c.) shall be borne equally by the allied societies.

17. That any additions or alterations to the foregoing rules may be made by the vote of two-thirds of the members present at any annual meeting.

It was also resolved "That the thanks of this meeting be given to Mr. Pritchett for the trouble he has taken in organizing the alliance, and that he be requested to continue for the present to act as honorary secretary."

Mr. Austin having left the chair, it was also resolved "That the thanks of this meeting be given to Mr. Austin for his conduct in the chair."

During the afternoon an interview took place between the council of the Royal Institute and the delegates. The gentlemen were introduced by Mr. Roger Smith. On behalf of the Institute it was shown by Mr. Asptel (who occupied the chair), Professor Kerr, Mr. Street, and another gentleman, whose name we did not catch, that the council of the Institute was very anxious for greater union among the various architectural societies in the kingdom, but that they were established by royal charter to accomplish the very objects which the alliance had in view, and that they could not see their way to joining an alliance in which they were to have not many more delegates than the other associations. It was also asked whether the same objects would not be accomplished if all architects joined the Institute.

On behalf of the alliance it was replied by Mr. Austin, Mr. Lloyd, Mr. Pritchett, Professor Chamberlain, Mr. Bunker, and Mr. Hay, that the great body of country architects never would join the Institute so long as the terms and conditions remained as at present. That considering they could take no part in its management, or even attend its meetings, it was not likely they would pay two or three guineas entrance fee, and one or two guineas subscription. Moreover, that they were not likely to enter as associates, so long as that class of members could not vote, and as country practice was so different to metropolitan, many of them could not become fellows so long as the conditions respecting measuring were so stringent. It was also shown that country architects preferred having their own local associations, where they could meet and regulate their own concerns, and what they now wanted was an organization through which they could compare their several views and modes of practice, and promote similarity of action.

There seems to us no difficulty in accomplishing the objects sought if each body were to give and take a little. Let the alliance view the Institute as an influential incorporated body, and let them admit from it a number of delegates fully proportionate to its dignity, so that the Institute may join the alliance; and let the institute reduce the subscription, and relax the regulations as

to country members, so as to induce them to join the Institute. By this means the alliance would embrace the whole country, and the Institute would soon have members in every local association, which would thus become branches of the Institute.

In the evening the delegates dined together at St. James's Hall. Mr. Weightman, of Liverpool, presided at first, and Mr. Pritchett afterwards, on his unavoidable departure; Mr. Austin occupying the vice-chair. Various toasts were given, and the evening was pleasantly spent in social intercourse. We can only express the hope that this movement which has been so resolutely carried on up to its present stage, will have its *proper influence* on our professional brethren in Ireland.

It will be seen from the above report that a gentleman is moving for the establishment of an association in the south of Ireland, with which he is immediately connected professionally. We earnestly invite him and others to co-operate with us in reviving the defunct "Institute of Architects in Ireland," convinced as we are that it is far better to have *one good national professional society* for Ireland, than two or three mere district poor ones. The 15th of August is the day fixed for the free admission of an architectural body. Let our Irish practitioners bestir themselves, and see if they cannot revive the Institute before that time. *Now or never.*

THE AWARD OF PRIZES—GREAT INTERNATIONAL EXHIBITION.

THIS ceremonial came off on the 11th inst. with all befitting pomp, and in the presence of a vast assemblage. The Duke of Cambridge was on this occasion, as on the opening of the Exhibition, the presiding personage, and he was accompanied by the Viceroy of Egypt, Prince Carignan, the Premier, Earl Russell, and a host of nobility and distinguished personages. When the cortege assembled on the dais, the effect was very beautiful; and Lord Granville, accompanied by his brother Commissioners, advanced to the foot of the throne, and addressed the guests as follows:—

"I have the pleasure of welcoming, on the part of her Majesty's Commissioners for the International Exhibition, the distinguished representatives of foreign nations who honour us by taking part in the proceedings of this day. The readiness with which the governments of foreign countries have responded to the invitation of the English Government is highly appreciated by the people of this country. I have now to request that the Special Representatives will receive the Report of the Council of Chairmen of Juries. The awards will then be delivered to her Majesty's Commissioners. We invite the assistance of the Special Representatives to make the awards known in the building, as it will be agreeable to the exhibitors of the several countries to learn from a distinguished representative of their own nation the appreciation by the juries of their successful labours. In passing through the building the Special Representatives will not fail to observe that the industry of all nations has shown a remarkable development since the last International Exhibition—a development which, justifying the anticipation of an illustrious Prince—now, alas! no more—owes much to the facility given by such exhibitions for comparing the state of industry in each country, and affords a starting point for further progress."

Lord Taunton, as President of the Council of the Juries, then read the following Report:—

"The work of the several juries having been brought to a termination, it becomes the duty of the Council of Chairmen to explain the manner in which the juries were constituted, and the result of their labours.

"The juries consisted of English and foreign members in varying proportions. The English jurors were in the first place nominated by exhibitors, and these nominations having been carefully considered, her Majesty's Commissioners invariably appointed such persons as appeared to be named by the general agreement of a trade or district. In cases where the nominations were not made on a common understanding, the Royal Commissioners were guided in their choice by the number of votes given to particular individuals, and, in some instances, by the desire expressed by exhibitors that the Commissioners should themselves select persons possessing the necessary qualifications.

"The British Colonies were represented by jurors recommended by the several Colonial Commissioners.

"Foreign nations taking part in the Exhibition had a right to nominate one juror for every class in which they were represented by 20 exhibitors, and for every section of a class in which they had 15 exhibitors. As an alternative, each nation had a certain number of jurors allotted to it, in proportion to the space which it occupied in the building, and several countries accepted this alternative. Her Majesty's Commissioner's, without fixing any arbitrary pro-

portion between foreign and English jurors, appointed as many of the latter to each jury as the experience of past exhibitions showed to be necessary for its efficiency.

"The juries were 65 in number, grouped so as to form 36 classes, or head juries, corresponding to the 36 industrial classes under which the objects are arranged in the Exhibition. Each of these head juries, when subdivided into sections, acted as a united body for the confirmation of awards. Before, however, these awards were considered final, they were brought before, and received the sanction of a Council, consisting of the chairmen of the 36 head juries. The chairmen forming the Council which regulated the affairs of the juries were nominated by her Majesty's Commissioners from the jurors of different nations, a number being allotted to each country relatively to the space assigned to it in the building. The Council was presided over by a chairman appointed by her Majesty's Commissioners.

"Her Majesty's Commissioners decided that only one description of medal should be awarded by the juries. This decision considerably facilitated their labours, as it became necessary only to reward excellence wherever it was found, without reference to competition between the exhibitors. As the work of the juries advanced it was ascertained that many articles possessed excellence of a kind which deserved a special mention, without, however, entitling them to a medal; and, although it involved some departure from the principle that had been originally laid down, yet the Council of Chairmen acceded to the wish of the juries, and permitted such cases to be classed and published under the titles of 'honorable mentions.'

"The jurors and their associates engaged in examining the objects of the Exhibition amounted to 615 persons, of whom 287 were foreigners and 328 English. They are men of high social, scientific, and industrial position, drawn from nearly every civilised country in the world. Their labours have occupied two months, and have been of the most arduous description, as they had to examine the objects displayed by at least 25,000 exhibitors. It can scarcely be expected that none of the articles exhibited have escaped their attention. In a few instances the delay of arrival or of arrangement has rendered it impossible for the juries to examine every article now within the building; while, in other cases, errors in classification have rendered it doubtful to which of the juries the duty of examining some particular object should fall. Every effort, however, has been made to conquer these obstacles, and the omissions, if any, must be very few in number, and are not owing to the want of attention of the juries or of the officers engaged in facilitating their work.

"The number of medals voted by the juries amount to nearly 7,000, and the 'honorable mentions' to about 5,300. The proportion of awards to exhibitors is greater than in the International Exhibition of 1851, but less than in that of 1855.

"Notwithstanding the varied nationalities represented in the juries, it is gratifying to record that the utmost harmony has prevailed during the whole time that the jurors have been associated in their labours. The mutual dependence and intimate alliance between the industries of the world have been illustrated by the zealous and impartial efforts of the jurors of different nations to recognise and reward the merit displayed in the exhibitions of their industrial competitors.

"We are glad to observe that the state of industry, as shown in the International Exhibition, gives evidence of a singularly active and healthy progress throughout the civilized world; for, while we find every nation searching for new raw materials or utilizing products hitherto considered as a waste, we are struck especially with the vast improvement in the machinery employed to adapt them to industrial purposes, as well as with the applications of science and with the great and successful attention which is now given to all the arts necessary to gratify our taste and sense of beauty.

"We cannot conclude this report without expressing our obligations to Dr. Lyon Playfair, the Special Commissioner for Juries, for the constant and intelligent assistance which he has rendered to us throughout our labours, as well as to the Deputy Commissioners and Secretary who have acted under his direction, and have afforded efficient aid to the several juries during their inquiries."

To these addresses the Duke of Cambridge made the following reply:—

"In performing the duty entrusted to me by her Majesty on this occasion, I have great pleasure, on behalf of the representatives of the various nations which have taken part in this Exhibition, in receiving from your lordship an account of the labours of the juries. All countries owe a debt of gratitude to the large number of jurors, who, at a great sacrifice of time and personal convenience, have gratuitously undertaken a work of such an arduous description. The efforts made by so many distinguished men of different nations to recognise and reward the exhibitors from all parts of the civilized world cannot be too highly appreciated. I have every confidence that the decisions of the jurors will meet with general approbation, and that the knowledge acquired by them in the discharge of the duties which they have so well performed will be the means of giving a new impulse to industrial progress in the countries which selected such eminent representatives of their scientific and manufacturing skill."

The following exhibitors from Dublin were awarded medals:—

Class VI.—Carriages not connected with Rail or Tram Roads.

Jurors who are also Exhibitors—G. N. Hooper, J. W. Peters, and H. Holmes.

Hutton, J., and Sons, brougham.

Class IX.—Agricultural and Horticultural Machines and Implements.

Juror who is also an Exhibitor—J. Pintus.

Keenan and Sons, lawn-mowing machines.

Class X.—Civil Engineering, Architectural and Building Contrivances.

Juror who is also an Exhibitor—J. W. Bazalgette.

Section A.—Civil Engineering and Building Contrivances.

Macneill, Sir J., F.R.S., bridge over the Boyne, illustrated by model.

Class XIII.—Philosophical Instruments and processes depending on their use.

Mr. Wheatstone, one of the jurors, is also an Exhibitor.

Grubb, T., large equatorial telescope.

Class XXI.—Woollen and Worsted, including Mixed Fabrics generally.

Jurors who are also Exhibitors—Messrs. W. H. Chlarnum, H. Hudson, and H. S. Way.

Fry, William and Co., Irish poplins and brocatelles

Pinn, Brothers and Co., Irish poplins.

Class XXIV.—Tapestry, Lace, and Manufactures.

Juror who is also an Exhibitor—Mr. D. Biddle.

Allen, C., Irish point lace.

Forrest, J. and Sons, Irish point lace.

Goblet, H. F., Irish crochet lace and needlework, and Valenciennes lace of superior manufacture.

Manly, G. N., Irish lace.

Class XXV.—Section B.—Saddlery and Harness.

Hinkson, J., saddlery and harness.

Lennan, W., saddlery and harness.

ROYAL PANOPTICON OF SCIENCE AND ART.

IN the course of a few days an establishment under this title, and to be distinguished for its recherché character, will be open to the Public in a leading thoroughfare. We have seen it somewhat to disadvantage; but unwilling to let the opportunity pass of being the first to record so new and important a feature in our city, we think it better to jot down the following particulars thereof, even in its crude state, than that it should escape notice till our next publication in a fortnight hence.

For the last month or so, the boarding and scaffolding that surrounded the exterior of the house No. 70, Grafton-street (corner of Harry-street), and the troupe of operatives engaged thereon, proclaimed the fact that an important work was being proceeded with; but these auxiliaries being now removed, the premises stand exposed in their integrity to the public gaze. The elevation, without being elaborate, is tasteful; a neat wooden entablature, resting on Antæ of same material, being continued on ground storey along the entire front and flank, and the remainder to the summit is executed in cement. The first floor windows have architraves and entablatures with inverted trusses, and above them are panelled compartments, in one of which—larger than the others—is the title of the establishment as above. A bold projecting main cornice forms a crowning feature, and at same time being capped with an ornamental iron railing, seems to serve as an ambulatory outside a timber and glass structure that surmounts the whole. Of the purpose of this latter we shall presently speak. The windows are fitted with polished plate glass in large squares.

The interior, which is entered from a central doorway in Grafton-street, through a handsome porch with encaustic tile pavement and richly ornamented soffit, is very tastefully fitted with mahogany counters, glass-cases, and other fixtures, the accessory appointments being all in keeping. Here will shortly be displayed an unrivalled—at least as far as this city is concerned—collection of articles of vertu, vases, groups, figures, and other objects of art, in china, ormolu, crystal and bronze, together with philosophical, photographic, and optical apparatus, *cartes de visite*, albums, stereoscopic subjects, &c., &c. A spacious staircase, adorned with sculpture, and attractively painted, leads hence to the first floor, which is divided into two apartments, a principal and a minor, both being devoted to the exhibition of oil and water-colour paintings (for sale) by foreign and native artists, to photographs, &c., &c., of which the proprietor has already secured a choice and varied collection. By two distinct smaller staircases ascent is obtained to the photographic gallery—situated in the structure above referred to—and comprising one large apartment for taking photographs from the life, and another for copying drawings, busts, &c., with the requisite dark chamber intermediately placed. The general construction of the gallery is noteworthy, and the ventilation—so seldom regarded—is very complete. Other apartments are provided in connection with those described, and have reference either to the manipulative operations of the photographic

artists, or to the accommodation of the patrons of the establishment, who, in reward of enterprise, talent, and worth, we trust may prove to be "legion." Mr. Simonon (late of Simonon and Millard, the eminent photographic artists in Lower Sackville-st., of whose skill we have occasionally availed ourselves in the production of illustrations) is the proprietor, and certainly he inaugurates by a peculiar combination of productions quite a new era in the character of local scientific and artistic repositories. Those who know what it is to doctor up old premises—with which Grafton-street abounds—must admit that the parties concerned in these have done their work well, from the architect, Mr. Sloane, and the builders, Messrs. Grant and Lennan, to the humblest operative engaged. Messrs. Sibthorpe have executed the painting and glazing in their habitual excellent style, being ably assisted in the "graining" department—which is remarkably excellent throughout—by Mr. Ward, the respected President of the Painters' Society.

PROPOSED NEW CITY CATTLE MARKET.

THE advocates for the retention of Smithfield have been bestirring themselves to defeat the objects of the promoters of the North Wall Market, for which an Act of Parliament was recently obtained after a protracted struggle; and have already succeeded in securing, by guaranteed subscriptions, nearly the amount required for the erection of a suitable market on a desirable site.

MEMORANDUM.

"At a large meeting of gentlemen interested in the cattle trade of Ireland, and some members of the Corporation of Dublin, held at the office of Mr. Peter Aungier, North King-street, Dublin, on Thursday, the 3rd instant, the following resolutions were adopted:—

"Proposed by Mark Aungier, Esq., and seconded by Alderman Carroll, and resolved:

"That Lucas A. Treston and Michael Cahill, Esqrs., be appointed secretaries."

"Proposed by Alderman Lambert, and seconded by James Kelly, Esq., and resolved:

"That, having carefully viewed and examined several sites on the western side of Dublin, we find Mr. Jameson's land, joining Prussia-street, or Mr. Richardson's fields, are the most desirable for the formation of a cattle market, and would be in every respect suitable and convenient for such purpose."

"Proposed by James Whelan, Esq., and seconded by William Dunne, Esq., and resolved:

"That, having ascertained that the Corporation of Dublin are sufficiently empowered, without any further legislation, to establish and make a market, with power to rent or purchase lands for the purpose, and to levy tolls, they are hereby requested to make the necessary arrangements to procure either of the sites selected, and to proceed without delay to make such market, with such rules as will secure to the owners of cattle the privilege and power of selling same, without the intervention of any third person, as in London or Liverpool."

"Proposed by Robert O'Brien, Esq.; seconded by Nicholas Ennis, Esq., and resolved:

"That Peter Aungier, Esq., Alderman John Reynolds, Alderman Lambert, Dr. Gray, and Robert O'Brien, Esq., do form a committee for the purpose of making all necessary arrangements in order to carry out the object of the foregoing resolutions."

"That in order to supply funds for the making of such market, we, the undersigned, hereby undertake and agree to advance to the Corporation of Dublin the several sums set opposite to our names respectively, for the purpose of enabling them to construct such market, the repayment of such moneys, with interest at £6 per cent., to be secured on the tolls to be levied in such market, which are not to exceed those charged in the cattle market of Liverpool:—

"Peter Aungier, 1,000*l.*; Whelan & O'Brien, 1,000*l.*; Peter Heney, 1,000*l.*; Richard Coffy, 1,000*l.*; Daniel O'Brien, 1,000*l.*; Mark Aungier, 500*l.*; John Leonard, 500*l.*; Mark Leonard, 500*l.*; John Gray, 500*l.*; Michael Cahill, 500*l.*; Thomas Brangan, 500*l.*; James Lambert, 500*l.*; L. A. Treston, 500*l.*; Richard Walsh, 200*l.*; James Plunket, 100*l.*; Thomas Rooney, 200*l.*; William Gibson, 500*l.*; Nicholas Ennis, 100*l.*; J. Butler, 100*l.*; Joseph Kilby, 500*l.*; Thomas Boylan, 500*l.*; Samuel Garnett, 200*l.*; Edward Fox, 200*l.*; Samuel Garnett (Rossmin), 200*l.*; John Iyas, 100*l.*; Thomas Mooney, 200*l.*; Edward Hourke, 100*l.*; Duffy, Mangan and Butler, 500*l.*; James Newman, 200*l.*; James Dodd, 100*l.*; Laurence Reynolds, 100*l.*; William McGrane, 50*l.*; William Graham, 200*l.*; John Ennis, 100*l.*; James Cleary, 100*l.*; A. E. Graydon, 200*l.*; Patrick Donohoe, 50*l.*; William Murphy, 60*l.*; John Kinsella, 50*l.*; John FetherstonH, 200*l.*; John Jameson, 200*l.*; James Power, Bt., 200*l.*—£14,500."

IRISH SOCIAL AND INDUSTRIAL STATISTICS.—IV. PROGRESS OF THE PUBLIC REVENUE.

ONE hundred years ago—in 1762—the total revenue of Ireland was £878,068, the population about 3,000,000, and consequently the burthen of taxation was per head 6s. Irish, or about 5s. 6d. per annum British currency. On the outbreak of the American war in 1776, the imposition of new war-taxes brought the revenue for that year up to £1,093,881. The French Revolutionary War compelled the imposition of further burthens, until we find, in 1790, £3,131,833 was collected from a population then increased to about 4,000,000, or 17s. 6d. a-head. Ireland shared with Great Britain, after the Union, in all the responsibilities of the tremendous struggle with Bonaparte; and on his overthrow, so far as the enormous National Debt, created during the war, would permit, Ireland, equally with the sister kingdom, was suffered to enjoy the luxury of reduced estimates. In 1841, taxation had reached to a comparatively low point in the United Kingdom. Our share, although our population had more than doubled since 1790, was but £4,118,689, or only 9s. a-head. This low rate of contribution was not, however, destined to be of long continuance. The political disturbance throughout Europe since 1848 has imposed year after year the duty upon the British Government of living, if not in a state of actual warfare, in one resembling an armed truce, and by an enormous naval and military expenditure, secure the position of Great Britain as one of the great powers in the world. One of the consequences of the expansion in the national estimates was, in 1854, the extension of the Income-tax to Ireland. This imposed the first year a new burthen upon us of £550,000, and the following year, the tax being doubled to provide for the Russian war, our contribution was increased to £1,216,422. With this new tax, and increased spirit duties, our contribution for 1857 was swollen to £6,944,784, or about 24s. a-head on our thin population. With the reduction in the rate of the Income-tax in subsequent years, the revenue received from Ireland has slightly declined; but so also has her population in a nearly equal ratio, and we now, with a population of but five and three-quarters millions, yield a net revenue of six and one-half millions sterling—that is, 60 per cent. more than our eight millions and a quarter paid in 1841, and ninefold that of our ancestors of a century ago, or about 23s. 6d. per head against their 5s. 6d. a-head.

At first sight, this great increase in the public burthen will appear seriously oppressive and prejudicial, as so undoubtedly it would be, had the property of the country remained stationary, and the increased taxation been raised by the accumulation of the burthen on the taxpayers, without any consideration for their means and circumstances, or for the laws of political and social economy. But this is not so. According to that accurate and acute observer, Arthur Young, the annual rental of Ireland was, in 1770, not more than six millions Irish, or £5,600,000 sterling. At present it cannot be estimated at less than £18,000,000* per annum, and is probably much more. The total Irish exports of 1770, comprising agricultural produce, live stock, and manufactured goods, was valued at £3,250,000. In 1860, we exported 350,000 cattle, worth at least £3,500,000; about two millions of quarters of corn, value £5,000,000 sterling; sheep and pigs to the value of £1,500,000; 10,000,000 yards of linen; 2,500,000 gallons of spirits; 400,000 cwt. of butter; besides large quantities of bacon, beer, beef, and other articles—the whole of our exports being at least sixteen millions sterling in value. But as the rental of a country depends rather on the degree of competition for land than on its intrinsic value, and as it is possible to have very large exports of agricultural produce simultaneously with great domestic misery, we do well in seeking for a yet more decisive test of the national condition—this one is the value of labour, or the income of the labouring classes; and this test is the one generally recognised by political economists as the safest and the best. Arthur Young ascertained, by inquiry personally conducted in all parts of the kingdom, that the average rate of wages for agricultural labourers in 1770 was 6½d. Irish per day all the year round. The present rate for this class of labour is, as ascertained recently by the constabulary, 7s. 1d. a-week on the average for all Ireland, all the year round. Taking the number of labourers in 1770 as 2,750,000, their annual income would be £21,500,000 sterling; and taking the number of labourers in 1860 as 5,500,000, we have an income of £104,000,000, or nearly fivefold that of ninety years ago.

But it is yet more in the enlightened and equitable principles which now prevail in our fiscal policy, that we are to seek for the causes which render the burden of modern times so much more easy for the shoulders of the people. The Irish Parliament, in its wisdom and selfishness, taxed the exportation of agricultural produce, cattle and corn, butter and tallow; and while it refused to

extend the land tax, then paid by the landlords of England to the landlords of Ireland, it levied under the name of hearth money a poll tax from the poorest cotter tenant and the hardest wrought artisan. Taking the year 1773 as an example, we find that out of a gross sum of £953,074 received, no less than £578,275 was produced by hearth money, export duties on agricultural produce, additional tax on beer, excise duty on whiskey, and the import duties on tea, tobacco, rum, salt, and gin, leaving but £376,799 as the produce of taxation on wine, silks, stamps, woods and forests, and the other branches of revenue from the Crown property and the upper classes in society. Now, our farmers and graziers are free to export their produce to the best market they can find, without legislative restriction or custom-house mulct, and the hearth is no longer the subject for taxation, while, per contra, income and property have been brought to yield their just quota of contribution to the support of the State; and so much has the burthen of taxation been thrown on the luxuries, to the relief of the necessities, of life, that it is quite possible for a poor man, content to live philosophically, exclusively on the latter, to altogether escape from the position of contributor, directly or indirectly, to the British Exchequer.

In 1770 the revenue of Great Britain was, in round numbers, 13 millions sterling, and that of Ireland 1 million. Of these proportions of 13 to 1 now obtained, while Great Britain contributes 64 millions, Ireland showed £4,900,000, but those proportions no longer obtain. Ireland has so far overtaken her rich neighbour as to now possess taxable property as 1 to 9 with Great Britain, and we are able to contribute 7 millions instead of but £4,900,000 against the 64 millions contributed by the larger and wealthier section of the United Kingdom. Some will be inclined to grudge this increase to the resources of the empire, and, perhaps, deplore the existence of a fact fatal to the favourite theory of Irish pauperism and degradation. We would remind such of our friends as incline to those views and theories that the respect of mankind is not usually commanded by gentlemen in destitute circumstances, and that it is not those who the most want favors, and most clamorously declare their very existence depends upon them, that generally, or even often, have those good things placed at their disposal. If we have any act of justice or of right to demand from our leading partner in the firm of Great Britain and Ireland, we have infinitely a better chance of succeeding by boasting of our bank balances rather than our beggars, and of our ready-money contributions to the British Exchequer rather than the loud howling of our patriotic mendicants in the British Parliament.

PUBLIC STATUES.—A return has been made to the House of Commons of the public statues in London, or monuments belonging to the nation, exclusive of those in places other than St. Stephen's Hall, Westminster, or cathedrals, and now under the charge of the Chief Commissioners of Works, specifying the date of erection and names of artists, if known, and from what funds purchased or erected. The list follows:—King James the Second, Whitehall Gardens, erected 1686, by G. Gibbons; George Canning, New Palace Yard, Westminster, by Sir R. Westmacott, paid for by subscription; King Charles the First, Charing Cross, by Le Sueur; King George the Third, Pall Mall, East, by M. C. Wyatt, 1836, paid for by subscription; King George the Fourth, Trafalgar Square, by Sir Francis Chantrey, paid for by Parliamentary grant; Lord Nelson, Trafalgar Square, commenced in 1840, at present unfinished, partly by W. Railton, archit., the statue by Mr. E. H. Baily, the bas-reliefs on the pedestal, by Messrs. J. E. Carew, M. L. Watson, W. F. Woodington, and J. Tearnmouth. The Duke of Wellington on the arch, at Hyde Park Corner, 1846, by M. C. Wyatt, paid for by subscription; Achilles, Hyde Park, 1822, by Sir R. Westmacott, paid by subscription; King George the Second, Golden Square; the Duke of Wellington, Tower Green, 1848, by Mr. Milnes, presented by the sculptor; King George the Third, Somerset House, by J. Bacon; Queen Anne, Queen Square, St. Andrew's, Holborn, and St. George the Martyr; Queen Anne, in Queen Square, Westminster; The Duke of Kent, in Portland Palace, by S. Gabagan, paid for by subscription; General Sir C. Napier, in Trafalgar Square, by Mr. G. G. Adams, 1858, paid for by subscription; Dr. Jenner, in Kensington Gardens, 1858, paid for by subscription, by Mr. W. C. Marshall; Richard Cœur de Lion, Old Palace Yard, 1861, by Baron Marochetti, paid for by subscription and by Parliamentary grant; Major-General Havelock, Trafalgar Square, 1861, by Mr. W. Behnes, paid for by subscription. In St. Stephen's Hall, the statues of Hampden, Selden, Walpole, Fox, Chatham, Pitt, Grattan, and Burke were erected between the years 1847 and 1848, and paid for by Parliamentary grant. The sculptors were Messrs. J. H. Foley, J. Bell, W. C. Marshall, E. H. Baily, F. Macdowell, J. E. Carew, and W. Theed.

The Louvre, already rich in Spanish pictures, has recently been still further enriched by a grand full-length portrait, by Valasques, of Philip the Fourth of Spain. This fine work has been acquired for the comparatively small sum of £920.

* The poor-law valuation of Ireland is in the aggregate £12,800,000 this year, which is based upon the principle of being reduced by one-fourth from the true hypothecated (always moderately estimated) value, represents £17,100,000.

MARCUS'S EXCURSIONS TO LONDON.

Now that the great International Exhibition—irrespective of the many other features of attraction in and about the world's metropolis—induces every one who can spare time and money in spending a holiday to go and see it, it may not be amiss to draw special attention to the facilities offered therefor by the arrangements of Mr. Marcus, the enterprising Excursion Agent for the London and North Western Railway Company. We are well aware that strong prejudices exist here against travelling by excursion trains on the English railways, and not altogether unreasonably, as fatal accidents have sometimes occurred to those adopting them as the means of transit; but an *occasional* casualty through the bungling of an official or two, and which might as well happen to an "Express" or a "Mail"—and often *does*—is hardly reasonable ground for the wholesale condemnation which certain portions of the public give "excursions." We also notice that people vociferate and grumble, because that while they pay by excursion only *one-third* what they should pay by "Express" or "Mail," they nevertheless expect to be transmitted by the former to their destination with equal facility to the latter. This is palpably the height of unreasonableness; but for such of our readers as will cast aside their prejudices and inconsistencies, we can supply, from practical experience, some information relative to what they may expect for their money, by availing themselves of Marcus's trips to and from London, as at present advertised.

The return fare is 40s. first class and cabin of steamer, and second class and deck, 20s. Twenty shillings for conveyance of a passenger *six hundred and seventy-two miles!*

The sailing of the steamers from the North Wall to Holyhead and *vice versa* must necessarily depend on tide; but it is usually arranged to take place for these trips between 9 a.m. and 2 p.m. Suppose, then, the excursionist leaves Dublin at 12 o'clock a.m., he arrives in Holyhead in time to proceed thence to Chester by the 6 o'clock train, arriving at 9.45, and as there is no train thence to London until 11.14, he has an hour and a-half to inspect the celebrated wall, the cathedral, and the quaint timber structures of that ancient city; or should the steamer leave the North Wall later—say 1 o'clock—that period would be spent in Holyhead instead. Except at Crewe—where excursionists are detained for about an hour—there is no other material delay on the road, and the train arrives at the Euston terminus at 5.50 next morning. The return journey is accomplished in something about the same period, and, when practicable, the boat starts on arrival of the train.

With respect to the class of vessels for conveyance of passengers across channel, the London and North Western Railway Company's steamships Admiral Moorsom, Telegraph, Hibernia, Cambria, and Sea Nymph (formerly the Express boats), are very commodious and powerful; in fine weather performing the journey in less than *five hours*, and seldom exceeding *six*. By paying an extra 2s. 6d. on the boats, second-class passengers can obtain first-class cabin accommodation; and the officials, generally speaking, both therein and on the line, are obliging; a *trifling consideration*—though forbidden by the company's rules—not being altogether an injudicious investment to secure increased attention. As excursion trains are *extra*, or at least partly so, sometimes merging at certain points into the ordinary service trains, strict precaution is necessary to avoid mishaps; and as a general rule this is exercised with ability, and the position of other trains is so accurately ascertained by telegraphic communication between station and station, that the *probabilities* of accident are very considerably lessened, and the "excursion" is sure to be shunted off the main line to a siding in ample time to admit of those following on the track to pass by. We recollect reading at one time a suggestion of our facetious contemporary, "*Punch*," effectually to obviate railway accidents—viz., "that a Director should travel in each train," and if that might be regarded as really offering any additional guarantee of safety, it may here be noted, that a responsible manager travels with Marcus's excursions, and to his watchfulness and general courtesy the pleasure of the trip is mainly attributable.

We hope that the few foregoing observations—disinterestedly offered and unsolicited—may secure for Mr. Marcus's next trips to the Exhibition an increased host of excursionists from Dublin henceforward.

TAXES UPON DEATH.—The finance accounts show that the tax upon probates of wills and letters of administration produced a nett sum of £1,307,307 in the financial year 1861-62; the tax upon legacies and successions £2,266,351. They are constantly-increasing taxes, growing with our growth; the increase last year over the product of the preceding year was £123,540. The first of these duties is of very respectable antiquity, for a stamp duty upon probates of wills and administrations has been collected ever since 1694, being one of the Dutch importations of that period; but legacy duty is only eighty-two years old, and succession duty on real estate only nine.

THE NEW WESTMINSTER BRIDGE.

This structure is rapidly approaching completion, and a portion of it is open for traffic. The general design is distinguished for its lightness of character and correspondence with the style of the Houses of Parliament, which it adjoins. As is usual in nearly all Mr. Page's cast-iron bridge constructions, there is an apparent shallowness at the crown of the arches; nevertheless, a closer inspection inspires confidence in their stability. The spandrels of the outer ribs, which are of elliptic form, are filled in with tracery or with appropriate escutcheons, and the piers and abutments are of solid character, and surmounted by tasteful Gothic standards, but of somewhat insignificant proportions considering the vastness of the structure. The parapet is pierced with trefoil panels, and has a bold capping, but being little over 3 feet above the pathway, is dangerously low, and we apprehend numerous fatal results, both by accident and design, if not immediately raised by the introduction of a vine leaf or other ornament at top. This has formed a subject for consideration recently in the House of Commons. The roadway is slightly curved, and has trams for heavy traffic in the centre; the pathways are spacious, and are floored with fire clay tiles, which are too small, however, in area to withstand the wear and tear of the enormous traffic passing over them. In other respects the Westminster new bridge must be regarded as a thoroughly successful work, and we should be glad to see the beautiful design of its engineer (in conjunction with Mr. Richard Turner of this city) for our proposed Carlisle-bridge, and now exhibiting at College-street, carried out.

PUBLIC WORKS.

FROM the Thirtieth Annual Report of the Commissioners we collect the following:—

"At the close of the financial year ending March, 1862, there remained unappropriated out of the fund of £2,000,000, voted by Parliament for the Land Improvement Service in Ireland, the sum of £304,438. The total amount advanced by Government under several Acts was £10,256,560 9s. 4d.; of this there was repaid £4,145,269 12s. 11d., and there was remitted £5,643,004 2s. 6d. The advances for the past year, ending on the 31st of March, were £54,386 9s.; and the repayments were for the same period £219,725 13s. 4d. With regard to land improvement, the works carried on in connection with the Land Improvement Acts, have now been in progress for fifteen years, and have, even from the commencement, been conducted in a systematic and satisfactory manner; and the Board has pleasure to record the unqualified acknowledgment of the landed proprietors who have obtained loans, of the benefits which have resulted from them, not only as regards the immediate effect produced by perfect thorough draining, which forms the principal and most important feature of the works undertaken.

"During the early part of the present year, 1862, an unusual number of applications for drainage loans was made by landed proprietors, for the double purpose of improvement by draining, and as a means of giving employment to the labouring poor when most required; and every exertion was made by the Board to meet such demands, by expediting, as far as possible, the arrangements to facilitate the perfection of the loans and issue the first instalments, feeling that doing so was so far aiding the most remunerative as well as legitimate mode of administering relief to those who stood in need of it.

"The total sum issued on account of works up to the 31st March, 1862, amounted to £1,625,981, of which £1,533,671 was expended on the loans which have been completed, and £92,310 has been issued on 288 loans which are in progress, or have not been finally closed. These totals comprehend 251 loans, amounting to a sum of £87,410, which have been sanctioned, to proprietors for the erection of farm buildings; and 12 loans, amounting to £7,150, for the erection of labourers' dwellings. With respect to arterial drainage, the Commissioners state that their duties have been confined in the last year to determining the amount of increased rent to be paid by tenants. Four supplemental awards have been made during the year, amounting to £1,624 11s. 4d."

THE CITY HALL COMPETITION.

No. 3 Committee met on Friday last to examine the plans submitted to them in competition for the altering of the approach to the City Hall, but nothing definite (as we are informed) was arrived at. About eleven designs have been sent in—and one model—some of which are distinguished for their architectural suitability and taste, but there appears to be a constructional difficulty in applying them to the building, owing to the character of the foundations. We believe it to be not improbable that the drawings will be exhibited in the council chamber.



DESIGN FOR AN IRON CHURCH.

MESSRS. S. C. HEMMING & CO., IRON BUILDING CONSTRUCTORS, LONDON.

INTERIOR VIEW.

ON THE APPLICATION OF GLASS TO THE ARTS.*

THE first intention in using coloured glass for filling windows seems to have been to produce an harmonious arrangement of colour and form. The representation of subjects was evidently not the principal object, and we find in the earliest glass, when figures are introduced, that they are so managed as not to interfere in any way with a good and even distribution of colour. This seems to be one of the first great principles of glass painting, without attention to which excellency cannot be attained. If there be a preponderance of one colour in any part of a window, harmony is destroyed, or even if any one colour prevail throughout, the effect is not pleasing, and great judgment and practice are required in the selection of those colours which agree best together. It would be difficult to lay down fixed rules, practice only can give knowledge in this, as in all other branches of art. Yet some general remarks may be useful. A proper arrangement of white glass throughout a window is of the greatest importance; it should never, if possible, be used in large masses, but should be distributed as evenly as possible among the other colours. When a white dress is required for a figure, it should be toned down with a diaper to prevent its standing too prominently forward. Another fact to be borne in mind, is that colours in a window do not look the same as in the sheet, and that the value of a colour changes with the position in which it is placed with regard to other colours. For example, a piece of cobalt blue glass will look light in the sheet, whereas in the window it may be too dark; this arises from the contrast between it and surrounding colours. This remark applies to every colour and tint; therefore, in all cases, before beginning to paint the glass, the various parts of the window should be cut and put together on a glass easel, and placed in such a position that the painter may be able to judge if his colours harmonize properly. This should be done not only with each figure, or small portion of ornament, but with the whole light. By following this method much after-labour will be saved, and a much more effective work will be produced. The artist who paints on a wall or on canvas has his whole subject before him, and changes his colours as he finds necessary, working up the whole together; and in glass painting, though the method of working is different, the same end is to be attained; and, on the whole, the same means should be employed. A window, whether it consist of ornament or subjects, or both, is a work of art, and the artist who designs it must superintend it carefully from its commencement to its finish; though the various parts are executed by different workmen, he must regard, and keep in view its effect as a whole. It is not because a person understands the mechanical part of glass painting that he can therefore execute a good window, as great artistic talent is required to produce a painting in glass as in oil or fresco, as good a conception of the subject to be treated, and as great power of carrying that conception into effect. The glass painter has a difficult material to deal with; he must have a perfect knowledge of that material, and of the various effects which can be produced with it. It is vain to attempt the same effects in a glass, as in oil painting, or rather in the same way. The characteristic of glass is its power of transmitting light, this should not be unnecessarily destroyed. Perspective effects cannot be got successfully without injury to brilliancy. After the completion of the design and the working drawings, the selection of glass holds the first place. This is the artist's work, and is quite as important as any other part. It should never be left to workmen, however skilled, and great care and attention are required. To obtain brilliancy in the general effect of a window, such glass should be used as will refract the rays of light; that which is perfectly clear like ordinary window glass, looks poor and thin, although its colour may be as deep, or even deeper, than glass of more irregular texture, yet its effect is not so rich, nor its colour so distinct. In ancient windows, where blue and ruby are used largely, the purple tint which characterises some later work is never seen. This is owing to the structure of the glass, to its refractive power. Where lights and shadows occur in drapery or ornament it is well to select glass of uneven tint, so that little assistance is required from the painter to render them effective, the darker part of the glass taking the place of the shadows, and that which is less strongly coloured of the lights. Where great brilliancy is desired, flint glass, or that into the composition of which oxide of lead enters, should be chosen, its refractive power is greater than that of any other kind. Rolled glass is excellent for back grounds and draperies in certain situations, particularly where the idea of distance is to be expressed; pot metals are always better than flashed or coated colours. We are, however, compelled to use flashed ruby, that which is coloured in the substance of the glass being at present too expensive for general use. Yellow stain should be used sparingly, where possible yellow pot metals ought to be selected. Many a beautiful design has been spoilt in its execution by neglecting or leaving to others the selection of glass. After the glass is chosen, and the various portions of the cartoon have been arranged, the whole looks somewhat like a child's puzzle; the painter then begins to trace the lines, marking out the subject with colour mixed with

flux. This colour is known as tracing or enamel brown. It is made with the dark oxide of iron, and a flux which fuses at a low temperature. Different persons have different mixtures for fluxes; they are, however, generally composed of flint glass, oxide of lead, and borax in various proportions. A good mixture is, red lead 9 parts, borax 5 parts, and flint glass powdered 8 parts. These are mixed well together and melted in a crucible, after which they are poured out into cold water and ground with the oxide of iron; the colour so made is opaque. The lines with which the figure is outlined should be *strong and decided*, so that when held to the light they may boldly define the various parts of the figure, and on their strength and boldness greatly depend the distinctness of the forms painted.

It is usual at this stage of the work to fire or burn in the colour which has been applied. This is done in a small kiln or muffle, usually made of iron. Its form is generally longer than wide, and the height should not be much more than half its width. Its bottom is bedded on fire tiles, beneath which is the fire-box, and flues conduct the flame to the sides of the muffle, space being allowed for them to play freely over its sides and top. Great care is required in the management of this part of the process. The painted pieces of glass are laid on iron plates, previously coated with well dried whitening, so that when the glass is soft it will not lose its shape or adhere to the iron. If the kiln be fired too highly, a great part of the tracing brown will be burnt away; if it is not fired enough the colour will be only partially fixed to the glass. Practice is required to tell the exact degree of heat to which the muffle should be brought. If the flux be not too hard, a dull red heat is sufficient. A hole, with a tube projecting about one foot, is made in the door of the muffle, so that the fireman can look into it from time to time, and regulate his dampers, so as to keep the heat perfectly regular and even. The orifice of this tube is stopped with a plug, which can be easily taken out and replaced. When the glass is sufficiently burnt, the fire is raked out, and the whole is left to cool gradually from twelve to twenty-four hours: this is the annealing process referred to in the former article. If the firing process be not properly attended to, great loss is frequently experienced in breakage, and much work is destroyed by excess of heat, which has to be repeated. Again, if the colour is not sufficiently fast, in course of time it will wear off the glass by the action of the atmosphere. One sometimes sees examples of this in stained glass windows. When the muffle is *quite cold*, it is opened. If the glass be hot when brought into the air, it is liable to fly from unequal contraction. The next operation is to complete the shadows of the figures or ornament. This is done by the tracing brown in various ways; either by stippling, smearing, or cross-hatching. As translucency should not be destroyed more than is requisite for the good effect and strength of the subject, that system of shading which allows the light to show through it in parts, is evidently the best. Therefore, stippling or cross hatching should be used, and as great force can be obtained as when smear shading is employed. In the thirteenth century hardly any shading was used; the effect was got by the strength and form of the lines, pink tinted glass being used for the flesh. Afterwards, and not till the fourteenth and fifteenth centuries, do we meet with stipple or cross hatching. Further remarks on this part of the subject will be made hereafter. When the painting of all the glass is finished, it is again fired in the same manner as before. In some instances parts of the work have to be retouched, and when this is the case, after every painting the colour has to be burnt in. It has been said that tracing brown is the colour used in painting the shadows. The artist has not a large range of tints at his command; however he has some, and it is well to vary them. Black is often employed, and also flesh tints are made by calcining the sulphate of iron and mixing it with flux. The colours on which he has to depend are those of the *glass itself*, and the enamel colours he uses should simply be regarded as giving form. The painted pieces of glass which form the window are, when taken to the glazier's room, to be joined together with lead. In the middle ages the lead was cast into the required form, and afterwards planed or trimmed with a knife: it was very strong and heavy. Now, when the lead has been cast it is drawn through a vice—a more simple, better, and neater operation. A few remarks are necessary on this part of the subject. The lead should not be too weak or too strong; if it is too weak it will not hold the glass together against the weather's action; if it is too strong it is heavy, and causes the lights in time to bulge out. This may be seen on inspecting some of the oldest windows. The *form* of the lead also is of importance: the leaf ought not to be too wide, its strength should lie in the core and the *thickness* of the leaf. It is obvious that a wide leafed lead must be more easily seen than a narrow one, and it is the object of the glass painter to conceal the lead as much as possible, using it so as to add to, rather than take from, the effect of his work, hence he adapts it to strengthen his outlines, to define his forms, or intensify his shadows. When the parts of the window are leaded together, the whole is cemented, that is, a mixture of oil and whitening and red lead, or any other suitable mixture, is brushed over it, and carefully rubbed into all the crevices formed between the lead and the glass. Painted

windows are secured in their places by means of iron bars crossing from mullion to mullion, around which are tied copper wires, soldered to the lead of the lights. Here, again, taste and arrangement are required to prevent the iron bars interfering with the effect of the window. Where it is possible, it is well to make them contribute to the ornamental forms of the stained glass. This was almost invariably done in the thirteenth century.

From the brief description given of the process of making a stained glass window—from the selection of the glass to fixing it in its place—it appears the eye of the artist should guide and regulate the whole; and it is in proportion as artists adopt and cultivate this beautiful method of illustrating their conceptions and perpetuating their works, that well executed glass paintings will adorn our churches, public buildings and mansions.

(To be continued.)

THE VALUE OF A PERFECT BIRTHS AND DEATHS' REGISTRATION.

At first sight this question appears to interest statisticians only, and not the general public, but this impression will be removed by a little careful investigation. It is by the labour of the people alone, and by the property created yearly by that labour, that this or any other kingdom can be or is supported. The protection of labour then, from destructive agencies of any kind, becomes a matter of the gravest importance, and everything calculated to economize its force and permit the full development of its vigor and strength must be considered as indispensable to the national progress.

In England this principle is fully recognized and practically enforced. Let us take the case of London. There we find an efficient drainage system extended to the poorest streets and the poorest dwellings; and no less than three millions sterling are now being expended to intercept the sewage outflow from the river, and carry it away to a distance from the centres of population and the crowded metropolitan and suburban districts. The old and impure sources of the water supply have been superseded by new and pure ones under scientific supervision. Vigorous measures for the suppression of cess pools and other nuisances have been adopted. Under Public Health Acts landlords have been compelled to provide water closets for their tenants, and provision, by the constant inspection of the dwellings of the humbler labouring classes, has been made, for maintaining them in a state of cleanliness necessary for the health of their inhabitants.

And moreover, the practical English mind, not satisfied with mere Parliamentary enactments and municipal regulations, has taken care to provide a system of checks and counter checks (following therein the constitutional analogy) on the civic administrators, to secure performance by them of their duties. Scientific men appointed by the government periodically analyze the water supplied by the water companies. The main drainage works carried on by the municipal body are constantly inspected and reported upon by government engineers, who also audit and report upon the municipal accounts respecting these works; and while, upon the one hand, the duty is imposed upon the officers of health and the inspectors of nuisances, to remove the causes of excessive sickness and mortality, the result of their labours is noted in the weekly reports of the government registrars of deaths and the causes of deaths, and published in all the London newspapers, whereby an instant exposure of official negligence or inefficiency, wherever occurring, is instantly afforded. On, of course, a smaller scale, every city throughout England is provided with a similar machinery for the protection of the public health. In all, local boards of health are established having a staff of officers of health and inspectors of nuisances and district registrars, reporting weekly on the sanitary condition of the locality, and finally, over all the municipalities, a department of the Privy Council, constituted under the "Local Government Act," exercises a wholesome and necessary supervision.

In Ireland, although we have "improvement acts" in abundance, those acts for the greater part, are suffered to remain in abeyance. Not a single city or town has a board of health; and out of some ninety municipalities, not over a dozen employ even a nominal inspector of nuisances, and the salutary system of revising and reporting on the corporate administration, by an independent authority, is unknown, in the absence of district registrars, inspecting engineers, and chemists charged with the duty of examining and reporting on the water supply.

But, perhaps under the Irish "happy-go-lucky" system (our patriotism atoning for our negligence), there is no greater waste of human life than in England, with all the care and precautions? Some figures taken from the last report of the Census Commissioners, that of 1851, will dispel this pleasing illusion. The Commissioners obtained from the registers of the civic and suburban cemeteries of Dublin, returns of the number of persons buried between 1811 and 1851, and of these 80,112 were returned as having

died within the municipal boundary; that gave an annual average mortality of 8,011, and on a population of 252,890 (the mean between that of 1841 and 1851), a death-rate of 1 in 31·5 per annum. The average London rate during the period was 1 in 41. Under that rate the Dublin deaths would be 6,168 per annum, and there remains consequently, 1,843 lives to be placed annually to the account of sanitary delinquency—a fearful waste of creative power, a heavy investment in the bank of human misery; and as Dublin is but an index in this matter to our other towns and villages, the fact speaks most suggestively to us as to the true cause of a good deal of the poverty and great distress among our working classes, prevalent whenever the slightest disturbance in their circumstances occurs.

So far, then, as we have proceeded, it must be obvious that the registration system is of the utmost value to our neighbours as a detector and exposé of municipal mismanagement or neglect, acting, in fact, pretty much as a detective police force does in ferreting out crime and collecting evidence against wrong-doers. Next we will inquire into the service it has rendered by creating and developing a public opinion in favour of sanitary measures. Two centuries ago London was the most unhealthy capital in Europe, having on an average of twenty years a mortality of 1 in 14 annually, or nearly three-fold the present rate. The great and wonderful change without which it would have been impossible for London to have grown into the greatest metropolis in the world, or for England to become the mightiest among the nations, was not effected by a change in climate, or in the seasons, or in race—to sanitary reforms alone it is clearly traceable; but how did these commence? The pages of history present us with the particulars. In the year 1538, the clergy were commanded by Royal proclamation to keep registers of marriages, christenings, and burials. Elizabeth commanded extracts from these, presenting the totals of each in all the London parishes, to be published weekly; and those bills thus published were called "The Bills of Mortality." At the close of the civil war—on the restoration of Charles the Second—social and philosophical questions were taken up and freely discussed, and among others, the statistics of mortality and the causes of death. In 1661 Gaunt published his "Natural and Political Observations upon Bills of Mortality." Sir William Petty and other eminent writers published similar works to shew, in the language of the learned physician just named, that "a new light had come upon the world" by the facts revealed from an analysis of these bills and the public mind thus became informed of the existence of an enormous evil, and was prepared to seize upon any opportunity for reform.

It is quite true that, so far as Ireland is concerned, she had and has the benefit of the knowledge acquired by her neighbours in books and theories, but the English reader will best understand the difference between this and the living practical facts relating to ourselves, presented weekly in a registrar's reports, by asking himself could London and England—now that all the scientific truths have been fully established through it—afford to dispense with the registration system? Would he advocate the putting an end to those weekly lessons to the public—those constant appeals to the wise and humane, forming and sustaining an enlightened public opinion? Would he say there is no longer a need for checking corporate officials—no longer a necessity for exposing their neglect, or stimulating their flagging zeal? And if not—if not a single English or Scotch M.P. could be found to advocate this suspension, or rather this return to barbarism, how can the matter be considered unimportant to Ireland? How expect us to believe that if Ireland were the larger kingdom, they would esteem it no injustice to England, if a British parliament sitting in Dublin suffered England to remain so long without an adjunct to civilization, now established in every well-governed state which makes its own laws and chooses its own rulers.

CONSUMPTION OF BEER IN PARIS AND BRUSSELS.—It appears from official returns that the city of Paris, with its 1,800,000 inhabitants, does not consume as much beer as the city of Brussels, and it is only the provinces of the North of France which can rival the Belgian provinces in the consumption of that article. In Brussels and its faubourgs there are no less than 1680 beershops, and an idea of the immense quantity drunk in those establishments may be formed, when it is stated that in one of them not less than 25 butts, containing a total of 5,625 litres, are consumed every week. In those houses much is sold to be carried away. Of the 1680 beerhouses, 350 brew themselves, and send out beer in small casks to private families.

* It is a remarkable fact that similar bills were shortly after published in Dublin and other cities in Ireland. From the observations of Sir William Petty on the Dublin bills in 1683, we learn the rate of mortality was 1 in 30 at that time. In the votes of the Irish Commons the salary of the Dublin registrar appears down to near the time of the Union.

LABOURERS' COTTAGES, AND THEIR BEARING UPON ARCHITECTURE.*

Now the actual amount of accommodation for the labourer is soon settled. He wants a living-room, a kitchen, and a pantry on the ground floor, and three bed-rooms above, with outhouse for wood, coals, office, &c.; or, to describe the ground-plan, as it is mostly and bestly used—a kitchen, which is also the living-room and the largest room in the house, and a wash-house, which serves as a back kitchen in the summer, and which, if we were speaking of a large house, we should call the scullery. There is the pantry besides, and, if possible, a closet under the stairs. This is the ground-plan required.

The point to be kept in mind in distributing the rooms of a cottage is, that the labourer can only afford one fire at a time; and, therefore, I should not hesitate to put his cooking-range—which it is of the gravest import should be a real kitchen-range, with boiler on one side the fire, and oven on the other—into the largest and best room—the living-room of the house—the room in which the family sit down to their meals, and around the hearth of which they gather in the winter evening. In common speech this, in the midland counties, is called, *par excellence*, “the house,” and this is the real home of comfort. In order to make this to be so used, the back kitchen, scullery, or wash-house (call it which you will), should be of such small dimensions as to preclude its use as a general cooking or sitting-room; for, wherever it is large enough to be so used, it will invariably be occupied to the desertion of the other room, which will then be preserved in its musty finery, and damp unaired atmosphere, for dress occasions only of fair or festival, or Sunday company.

There is a wretched fashion which pervades all classes of English people—intensifying as it descends in the social scale—of reserving the best and largest room in the house as the one to be least used, and seldomest enjoyed. I know of nothing more forlorn and dismal than to be shown into the finely-furnished, stagnant, unwholesome drawing-room, where you feel in an instant that no foot has trodden since the servant came to open the shutters—not the windows—in the morning. The unpleasant sensation of being shown into a company-room is as bad as being received with company manners; and, common though the practice be, there is something about it altogether dissonant to the English notions of comfort and home. My rule would not apply to the great show-houses, where there are really state apartments too large for general occupation; but in all houses below that class, I would say, “use your largest and best room ordinarily for the benefit of your family and your everyday friends,” eschew the dull magnificence of a company-room. Never mind if your furniture gets a little rubbed; chairs were made to be sat on, carpets to be walked on, not to be looked at. But you are afraid of the children breaking your glass-shades, and sweeping off the table your nervous doyleys. Then do away with them altogether; and if the ornaments, placed under the one or on the other, go away along with them, there is no great loss. A single glazed cabinet may hold all your things really precious, and if the rest of the decoration of the room be such as will bear ordinary stowage and knockage, it will be introducing a far more manly and wholesome style of ornament than the wretched ormolu and paper maché frippery which now too commonly crowds the tables and mantel-pieces of our drawing-rooms—especially of new-married people. Or, if the result should be that the children of the rising generation be brought into better order, and made to respect the amenities and decencies of drawing-room life, it will be no private or public disadvantage, and perhaps will be useful in modifying the somewhat rampant characteristics of the young England of the present day.

I may seem to be travelling away from my cottage subject; but if I can get hold of principles of general application to all classes, it will have greater weight on any particular case, and I shall not be laying down a law for the cottage which I would not carry out in the mansion.

My object, then, is not to allow of a company-room in my model labourer's home; for it necessarily entails a sloppy, untidy, comfortable, every day existence in the wash-house or scullery; but if you make this latter room so small that it cannot accommodate the family at their meals, if you put the kitchen-range in the best room, have only a small hearth in the scullery, with boiler and sink, then you make this back room what it should be, the place for washing, slopping, and “doing,” as they say, “their jobs in,” and you force the family to live ordinarily in the largest and wholesomest room, which necessitates certain more comely observances of civilised life, and helps to elevate the whole household in their social relations. The really tidy, good housewife, the good mother who takes pride in the cleanliness of her pets as well

as of her pots, and likes to see her family in substantial comfort around her, will prefer this arrangement, though it implies a little more method, and entails a little more labour, to keep all things in their places in a room constantly occupied.

It is the slattern who, in her room or her dress, for the sake of Sunday's finery, is content to go all the week in dirt and discomfort. In a plan on the wall, it is proposed to carry out the idea by making the living-room, in front, 14 ft. by 12 ft., with the scullery 12 ft. by 8 ft. (by the projection of copper, sink, &c., reducing it almost to a square of 8 ft.), and the pantry, which is full large, 7 ft. by 6 ft.; but the coal or wood-house might also, possibly with advantage, be combined, and so the expense of these as outhouses be saved.

The reason of the scullery and pantry being drawn even as large as they are here is, that with a less ground-area you cannot obtain three bedrooms above, which are now rightly considered indispensable for a good cottage. That the parents, the boys, and the girls should each have a separate bedroom, is now deemed imperative in all well-ordered cottages; and I would not say a word against such a requirement; but I do think that the evils of crowded bedrooms have, as affects the morals of the poor, been exaggerated by those who look from what the Quarterly Reviewer calls “a dressing-room point of view.” It is rather on the score of health than of morals, that I would ask for the area of three bedrooms; and I believe that where the parents' chamber is between that of the boys and girls, a curtain may be often as serviceable as a thin wall partition. Certain it is, that both thoughts and habits of decency can accommodate themselves much more to ill-arranged sleeping-rooms, than those who are accustomed to the absolute privacy of bedrooms are wont to admit; and the pure and chaste morals of the lower Irish in their huddling bedroom arrangements are a remarkable testimony to this fact. But admitting the necessity of three bedrooms, the great crux of cottage building has been to get them of sufficient size over the ground area required for the living-room, scullery, and pantry. In trying to accommodate the one storey to the other, either the bedrooms have been cramped to a most inconvenient and unhealthy size, or the scullery has been enlarged, so as to make it become the general living-room, at a waste of space and money.

A plan before you, I think, takes a middle course, making the three bedrooms respectively 12 ft. by 9 ft.; 12 ft. by 9 ft. 3 in. in the widest part; and 11 ft. 2 in. by 8 ft. 2 in., with a corner taken off for the stairs. The two larger have fire-places, and there is a separate entrance to each. I will then set down the accommodation required for the married agricultural labourer as consisting, on the ground-floor, of: 1. Dining-room or kitchen in one; with range containing oven and boiler, pot-hooks, cupboard, light convenient for cooking, that is, on the side not facing the fire-place. Superficial area not less than 108 ft. 2. Scullery with sink, copper, small hearth, fire-place with outer door communicating with back yard, and another door communicating with passage, or, better, with living-room. Superficial area 96 ft. 3. Pantry with shelves and room for beer cask, window opening into the outer air, and in communication with passage or scullery. The three bedrooms, respectively, two about 108 ft. and one 90 ft. In round numbers, an area of about 300 ft. on each floor. The height of the lower rooms 8 ft.; of the bedrooms the same, or 5 or 6 ft. on the walls, with the roof taken in.

The best arrangement of this number of rooms is that which allows of an outer porch, with inner lobby or passage, giving independent access to stairs, kitchen, pantry, and scullery, with landing upstairs admitting separate entrance to each of the three bedrooms.

It may be doubted whether this arrangement of separate entrance, deemed so indispensable in a middle-class house, should be regarded as necessary in a cottage. It is certain that the labourers do not themselves care so much about it, and seldom complain of the door opening direct upon the living-room—of the stairs going out of the living-room or the scullery—or of the bedrooms opening one into another; but when we are seeking a model plan, it is as well to get as perfect an arrangement as we can, and one which will help to foster habits of order, and akin to what has, from its convenience, been sanctioned by classes higher in the social scale.

What the poor do complain of—and too often with reason—in the new cottages which have been provided for them, is the thinness of the walls, the cold draughts, and the smoky chimneys. I will go, therefore, into some details on these heads, saying a few words first upon the site.

I need not speak of the soil, because we must take that as we find it. Of course, we should prefer dry, gravelly ground, where we can procure it, as much for the cottage as the hall. We should regard, also, how the ground lies for drainage, and for a supply of water. But one rule of aspect, applying to the cottage, is directly the opposite to that of the mansion. In the great house we want the south for flower-garden and private use, and so contrive the public entrance anywhere but there; but in a cottage, which can afford but one front, we should always, if possible, get this to the

* Lecture by Rev. Thomas James, at Architectural Museum, South Kensington.

south—the door opening to the south, and the window of the living-room having the same aspect, looking upon the little garden of herbs and flowers, with the wicket upon the road, about six or eight yards off. The increased cheerfulness and comfort of a cottage so placed can hardly be overrated. There is no single drawback, that I know of, to this arrangement. It throws the sunny side of life into the living-room, gives the south wall for the vine or the apricot, and the flowers; and throws the hot washing work, and the little larder, to the northern or cool aspect.

The foundations of the walls should be deep enough to admit of the joints of the boarded floor—which I should like that of the living-room to be—being laid with eight inches, at least, hollow beneath, and with air-bricks in the basement course. Above all, immediately below the floor-level, the whole of the walls should have a layer of slate, laid in cement, or of asphalt, so as to prevent the damp rising. This, which indeed should never be omitted in any building, is most imperative in a cottage, where the presence of damp is too often the evil spirit that paralyses the strength and support of the whole family; and yet, though the cost is scarcely appreciable, there is no preventive oftener neglected than this.

Equally fatal to the comfort, health, and whole economy of the cottage, are the thin walls always used by speculative builders, and too often by those, also, whose aim is the increased happiness of their poorer neighbours. No common 9-inch wall, in an exposed situation, will keep out damp and cold; but hollow bricks of that thickness, or the same amount of bricks used hollow, and making eleven inches of wall, will suffice. I have drawings here, showing how bricks may be so used; but the difficulty of getting common bricklayers so to use them is, I know, excessive; and, from their inaptness to this kind of construction, a most disproportionate expense is added to the estimate. If we could once get our bricklayers out of the groove of the common solid 9-inch and 14-inch work, the extra material or labour required for 9-inch, 11-inch, or 12-inch hollow walling would achieve a most important advantage, at a comparatively small cost. Contrary to what is usually recommended, I should plaster the living-room and the bedrooms within; and if I could only get 9-inch solid walling, I should paint it on the outside, as an effective repeller of the damp.

Where stone can be procured as cheap as brick, it should be used, as necessitating a substantial thickness of wall; but I am convinced that, where it is the custom of the country, there is nothing so effective for cottages as mud walls. In the midland counties, I am sorry to say, they are disappearing; but there are many parts in the south and west where the old method is kept up, with some improvements introduced. But the art of building these walls is so local, and so dependent on the material at hand, that, though I could wish, for the sake of their warmth, to see them generally extended, I can hardly hope it. But some method of "post and pan," or of concrete, using the common soil for the main substance of the wall (as, I believe, is common in Eastern countries), might surely, if attention were given to the matter, be made available, as the cheapest walling for any locality.

AWARDS.

Perrin and Nolan v. the Wicklow and Wexford Railway Company.—Also a traverse of award made by Mr. Fishbourne. The complaining parties took the farm in question, Kilmagig, in the Vale of Ovoca, from the Earl of Wicklow, in 1855, and by a covenant in the lease they were to allow two acres to be taken for railway purposes. The whole farm consisted of eighteen acres, subject to £50 a year rent, and held for twenty-five years unexpired, and three lives. The lessees were bound to expend £500 in building purposes, and the railway company having taken eight acres the rent was reduced by £22, and the arbitrator's award for the land taken £191, and £50 for severance. The traversers claimed £800. The jury found against the traverse, and that the award was sufficient.

James Butler v. the Wicklow and Wexford Railway Company.—Traverse before Lord Chief Baron at Wicklow Assizes to show that the award of Mr. Fishbourne was sufficient to compensate the traverser for the land taken from him in the Vale of Ovoca. The award was £506 10s. 6d. for the land taken, between seven and eight acres, and £98 for severance. The case occupied the greater portion of a day, and the jury found for the traverse, with £231 in addition to the sum originally awarded; but the accommodation works were not extended as required.

Kernan v. Browne.—Appeal to Judge of county Meath assizes from the decree of the chairman of the county. Plaintiffs are masons, and were employed by defendant, who is a contractor on the Meath Railway, to do certain work. They alleged that, owing to the conduct of the defendant they could not perform the contract, and were kept idle for a long time. His lordship affirmed the decree for £40.

NEW PATENTS.

List of Letters Patent which passed the Great Seal on the 27th June, and the 1st, 4th and 8th July, 1862; Messrs. Byrne and Lambert, agents, 4, Lower Ormond-quay, Dublin:—

T. C. Clarke, for "Improvements in the construction of apparatus for heating and circulating water and other liquids."

G. Jeffries, for "Improvements in breech-loading fire-arms."

A. Warner, for "Improvements in preparing materials for, and in purifying coal-gas."

F. Brown, for "Improvements in kitchen ranges and cooking apparatus."

F. Shaw, for "Improvements in apparatus for stopping railway trains."

A. Heath, for "Improvements in the construction of Inkstands."

B. Cooke, for "An improved construction of implement for cutting turf."

T. Timmins and T. Simmons, for "An improved bath, combining in itself the advantages of hot air or Turkish bath with the vapour, slipper, hot and cold water shower bath."

J. Lillie, for "Improvements in the methods of protecting ships' bottoms from fouling, and in materials to be used therefor."

J. Nasmyth, for "Improvements in apparatus for obtaining a circular motive power."

Notes of New Works.

The Mining Company of Ireland are about erecting a manager's residence at the Ballycorus works according to plans by Mr. Charles Geoghegan, architect.

A new purveyors' washing establishment is to be built by the War Department at Cork barracks.

The Community of the Sisters of Mercy at Ennis have expended out of their private funds upwards of £2,000 on the building of their new Convent, which is said to be complete in its internal arrangements.

The church at Monkstown is to be enlarged under the direction of the architects to the Ecclesiastical Commissioners.

A new laundry is about to be erected at the South Dublin Union Workhouse; Mr. Murray, architect. About £2,000 will be expended thereon.

Two new banking projects—one for London and another for Ireland—are in course of arrangement.

BOOKS RECEIVED.

"An Account of the Colony of South Australia," by Frederick Sinnett (London: R. K. Burt, Holborn and Sydenham). "British Industry exemplified in the departments of Coal Mining and Iron Smelting," by Henrie O'Hara, C.E. (Dublin: William Magee). "Principles which should govern the classification and arrangement of Public Museums and other collections," &c. (same author and publisher).

For want of time, (the books arriving late) and space, we are obliged to hold over notice until next number.

THE VACANT APPOINTMENTS ECCLESIASTICAL COMMISSIONERS ARCHITECTS' DEPARTMENT.—We are at length in a position to announce, that Mr. James Fuller has received the appointment of Inspector for the North Western division, so eagerly sought for by upwards of 100 candidates.

THE CHAMPTON MEMORIAL.—The bronze superstructure is fixed in its position—having been cast in London from the model of the sculptor, Mr. Joseph Kirk—and the inauguration may be expected in a few days. It is presumed that the Lord Lieutenant will preside on the occasion.

BLACKFRIARS-BRIDGE.—Mr. Page's design, formerly adopted, has been shelved, and Mr. Cubitt's, which provides for a bridge of five arches of wrought iron with masonry piers, substituted.

TO CORRESPONDENTS.

W. B. (A view of the building has already appeared in this journal—No. 48). X. (Too personal for our interference). H. B. Limerick (An opportunity does not at present offer to comply with your request; your better plan is to advertise).

Communications respecting Advertisements, Subscriptions, &c, should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MABBOT-STREET." All other Communications should be addressed to the Editor, 26, LOWER GARDINER-STREET.

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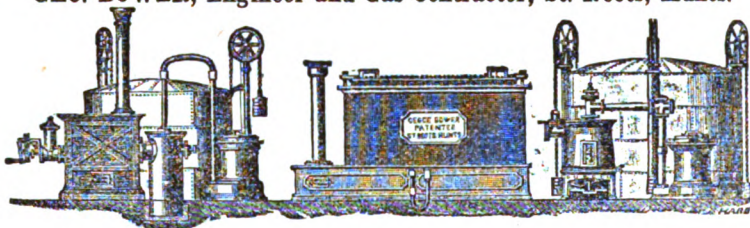
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gineers and the Public to the above description of
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entrance to the St. George's Dock, Custom-house
Quay, Dublin, for the Board of Works, which will be
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are WARRANTED.

The Dublin Builder.

VOL. IV.—No. 63.

PROGRESS AT THE ANTIPODES.

BY associations direct or indirect are the inhabitants of that portion of the globe called "the United Kingdom of Great Britain and Ireland" so linked with those of the great worlds beyond the seas, and more especially with the people of Antipodean climes—whose language and habits are identical with their own—that we feel assured we shall contribute gratification to our readers by a review of the history* and characteristics of the important Colony of South Australia (situated thereat), availing ourselves for the purpose of the most authentic and most recent source of information hereby quoted.

A great convict depot was established in the year 1788 in "Botany Bay"—New South Wales—which contributed a singular and world-wide notoriety to the locality; but after a lapse of some years, and by the aid of energetic exploring parties, who made important geographical discoveries, the valuable resources, agricultural and otherwise, and the extent of the Colony becoming known, settlers increased in number, chiefly under what is known as "the Wakefield system"—instituted, it would appear, about the year 1831, and the fundamental principle of which was to dispose of land "in blocks of moderate size and at sufficient price, the proceeds to be employed in introducing fresh emigrants." This principle, though alleged to have originated subsequent disasters, has been applied, with occasional intermission, and with marked success, to the present time, not only here, but in Victoria, New Zealand, and other Colonies. In the year named, an attempt to establish a chartered company failed; but in 1834 an Act was secured, providing "that the proceeds of the land fund should be devoted to emigration; and that a Constitution should be granted as soon as the population reached 50,000." Under this Statute (says Mr. Sinnett)

"The Colony was actually founded and settled, and South Australia soon after ceased to be a mere name upon prospectuses—an abstract idea to be worked upon at public meetings—a suggestion to be drummed by deputations into the reluctant heads of Ministers and Under-Secretaries—and became a concrete reality, a living community upon the face of the earth."

We will not stop to depict the various but comparatively unimportant incidents set forth as having occurred between this period and the 28th of December, 1836, when the first Governor, Capt. Hindmarsh and his staff, arrived in Holdfast Bay, and the Colony was proclaimed.

Colonel Light (the first Surveyor General) died in October, 1830, and the Colonists, who had been previously hostile to him for alleged negligence, erected a monument to his memory in one of the city squares (called after him), and "not quite so ugly as might have been expected."

Hindmarsh was recalled, also Gawler his successor, "who had caused a series of public works—roads, bridges, &c., to be commenced, which he had neither adequate money nor credit to pay for, and for which he had drawn bills on the Commissioners of the Colony in London for upwards of £123,000, during the year 1840."

The Commissioners refused to accept more bills; in fact, "stopped payment." In apparently a hopeless state of insolvency therefore, with an annual revenue of only £30,000, and a debt contracted of £300,000, did Captain (since Sir George) Grey—now Governor of New Zealand—find the Colony when he came in 1841 to succeed the "dashing Colonel;" but, by using "the pruning-knife unsparringly," by reducing the annual expenditure, and appropriating "the surplus to the reduction of the debt," and with the aid of a British grant, the new Governor succeeded long since in paying *all off*, thereby relieving the Colony from debt, except that debt of gratitude which the Colonists owe him for his prudence and wisdom.

The discovery, about this time, of the famous "Burra Mine,"

which attracted "many new-comers to the shores, and gave a needed stimulant to the commercial prosperity of the place," inaugurated a new era, and with it—for what reason does not appear—a new Governor—"Colonel Robe." His reign, however, was short and unpopular, and the next who tried his fortune with the Colonists was Sir Henry Young, "during whose tenure of office the South Australian Colonies were convulsed by the great discoveries of gold which followed so fast on one another in New South Wales."

Ruin to the South Australian Colonies here appeared for a while inevitable. "Ship loads left the shores," and "thousands walked or drove their teams overland," to the diggings—"scores of shops were closed"—and the streets seemed "to contain nothing but women." But the furor having ceased, "the great bulk of the diggers returned to their homesteads, bringing their gold with them, and becoming grain-producers for the gold-diggers of the neighbouring colonies."

In 1855 Sir Richard MacDonnell was appointed Governor, and has since given way to Sir Dominic Daly. Subsequent to that year, and up to the present time, the history of the Colony is described as one "of steady, industrial and political progress; the introduction of the new Constitution a most remarkable event; roads improved and bridges formed; surveys for railways to a large extent made; telegraph lines established, as well through the country as with Sydney and Melbourne; city of Adelaide supplied with water; coast lighted; numerous public buildings—viz., Hospital, Parliament and Government houses and offices, Police Barracks, an Institute and Free Library, &c., erected."

Having thus briefly traced the growth of the Colony through its vicissitudes, we shall now examine the general features of its principal city, "Adelaide," and afterwards inquire into the social condition of its population, &c.

"The streets of South Adelaide are laid out at right angles—nearly east and west, north and south—so that looking eastward along any of the former, the Mount Lofty Range terminates the prospect. . . . Good roads have been finished—and among the facilities for traffic in the South, the tramway between the Goolwa and Port Elliot must not be forgotten. This tramway is to be extended to the greatly superior anchorage of Victoria Harbour. . . . Agriculture is extending in the direction of the South-Eastern district, and the recent establishment of Port MacDonnell has already aided, and will no doubt still further aid, the development of agricultural resources in this direction. . . . The city, which is divided into north and south by the river Torrens, stands on an extensive plain about six miles by five; the central street (King William) is not more than 70 feet above high water mark; baths have been erected by the Corporation at an expense of £2,000, and Turkish baths are contemplated. The Park lands altogether comprise about 940 acres, and the value of this reserve becomes every year more apparent, as the city increases in population. The rows of houses, shops, and warehouses are continuous, and the land is of very high value. The squares and terraces are all well built upon, and it is only among the intermediate streets of the south that many vacant acres are to be found. Of the total number of 700 acres, of which South Adelaide consists, 221 are now unbuilt upon. The unnecessary size of the town has augmented the difficulty of providing efficient water supply, and gas (for the plant and pipes for which the company have sent to England) will for the present be confined to the more populous streets, which are now lighted with oil, and the shops with camphine and kerosene. North Adelaide, containing 342 acres, is occupied by private houses and shops; the site is hilly, and the streets, squares, and terraces are laid out to suit the undulations."

Enough has been included in the foregoing to convey a fair idea of this new-made town, which seems to have been originally laid out over an area *by far too extended* for its probable occupation—a fault which must always, more or less, militate against its progress; but many other interesting particulars may be gleaned from the comprehensive little work in question.

The state of the labour market in South Australia between the years 1852 and 1861, seems to have fluctuated considerably; the average rate of wages to domestic servants in the former year being £38, increasing in 1853 and 1854 to £55, diminishing again during two succeeding years to £45, raised again in 1858 to £48, reduced again to £45 during 1859–60, and in 1861 ranging from that figure to £52.

The following is the present scale as regards those classes connected with constructive and decorative arts:—

* "An Account of the Colony of South Australia." By Frederick Sinnett. London: R. K. Hart, Holborn. (Prepared for distribution at the International Exhibition of 1862.)

PER DIEM WITHOUT BOARD OR LODGING.

Blacksmiths, 8s. to 10s.; bricklayers, do.; cabinetmakers, do.; carpenters, do.; carriagemakers, do.; (working) engineers, 9s. to 12s. 6d.; Galvanized iron-workers, 9s. to 10s.; ironfounders, 13s. to 15s.; labourers, 6s. to 7s.; masons, 8s. to 10s.; painters, 8s. to 9s.; plasterers, 8s. to 10s.; plumbers, 10s.; quarrymen, 7s. to 9s.; and piecework, &c., &c.

As the actual value of money for labour is to be estimated chiefly by the equivalent marketable rates for the necessities of life, it is desirable to supplement the above information with some figures relating to a few of the provisions in ordinary use, &c.

Bread (per 2lb. loaf), 3d. to 3½d.; flour (per lb.), 2d.; bacon, 10d. to 1s.; milk (per quart), 4d. to 6d.; butter (per lb.), 9d. to 11d.; cheese (colonial), 8d.; beef, 2½d. to 6d.; mutton, 3d. to 5d.; lamb (per quarter), 3s. to 4s.; coffee, 1s. 6d.; tea, 2s. 9d.; wine (per gallon), 3s. to 10s.; porter (per hhd.), £7; ale, £8; tobacco (per lb.), 4s.; eggs (per dozen), 1s.; fowls (per couple), 5s. to 6s.; geese (each), 8s. to 10s.; turkeys (each, 7s. to 12s.; potatoes (per lb.), 1d.; turnips (per bunch), 6d.; cabbages (per head), 4d. to 1s.; peas (per peck), 1s. to 1s. 6d.; &c., &c.

The total population of the Colony is in or about 123,000; of whom 66,000 are males, and the balance females, with their various occupations detailed in interesting statistics, from which we collect a few as follows, viz. :—

MALES.

Labourers (branch of labour undefined) ...	3,306
Miners (of various classes) ...	1,908
Builders, carpenters, building surveyors, timber merchants, sawyers, &c. ...	1,346
Blacksmiths, whitesmiths, mechanical engineers, &c. ...	919
Masons, bricklayers, slaters, hodmen and stuccomen ...	854
Other artisans and mechanics ...	565
Quarrymen, brickmakers, road and railway labourers, &c. ...	490
Contractors (branch undefined) ...	71
Architects, civil engineers, land surveyors, draftsmen, &c. ...	61
	9,520

The females pursuing *immediate* occupations number about 11,000, which, considering that the total population of that sex is about 62,000, and that those "of no specified occupation" are not included therein, must be acknowledged to be a fair evidence of self-dependent spirit amongst that gentler section of mankind in the Colony, and may serve to stimulate the promoters of the movement *at home* for the more perfect "employment of females" to increased exertion.

In those classes of labour best suited to the sex, such as domestic servants (in which capacity 4,926 are engaged), farm do. (3,093), dressmakers and milliners (1,122), teachers (437), the figures of course preponderate; but we find otherwise engaged as *squatters* (that is to say, sheep and cattle farmers on unsold Government land), stockholders, graziers, sheep farmers, &c., 9; printers and bookbinders, 5; owners and drivers of coaches and cabs, 5; "ladies," not otherwise described (but whose occupation we may presume), 3; carrier, 1; wood-carter, 1; &c., &c.

Concerning the prospects of various classes, comprising in the abstract "capitalists" and those who purpose merely "to live by their means" (or more significantly, by their *wife*), it appears that those of the former, "who prefer larger returns and less perfect security, have an illimitable field before them;" and that of the latter, "the opportunities for professional men is less hopeful, the competition severe, and the prizes to be gained not remarkably great." There is no State Church, and all sects have to support their *own* ministers (? properly so); the profession of the law is not divided, a lawyer being "a barrister, attorney, solicitor, or proctor," each eligible for vacancies on the judicial bench, *two* of the present judges being English attorneys. Of medical men—all act as "general practitioners;" and in Adelaide there may be a half-dozen making large incomes, and a much more considerable number still struggling to do so. "A competent man (we are informed) could *probably* always be certain of a living, by going to a sufficient distance from the metropolis."

So much for the so-recognized *learned* professions, for "*the divines*," the "*big wigs*," the *gentlemen attorneys*, and "*the faculty*"—but there is yet *another*, not dignified with the title *learned*, but not the less important in its mission on that account, whose interest it is our especial duty to consider—and of its members we learn that "the number of engineers, architects, and surveyors is considerable, and, except in Government service, there is very seldom any civil engineering work to be done. One man probably could do all the private civil engineering in the colony, and not be very hard worked either. With only one or two exceptions of any magnitude, all roads, railroads, bridges, wharves, jetties, &c., are carried out under official superintendence. There is a considerable private employment for *architects*, but the workmen are in excess of the work to be done. It is only in the *general advancement* of the colony that we can look for any improvement in the prospects of the three allied professions last under consideration."

It must be deemed conclusive from the foregoing, that the inducements to emigration held out to young gentlemen who have just shaken off the trammels of apprenticeship, are not—as are most frequently supposed—of a highly encouraging character; that, in fact, without transcendent ability—and even then the path to fame is rugged enough—and what is more without—as *at home*—the indispensable auxiliary of "influential friends," success in a professional capacity in the colony of South Australia is as problematical as in the United Kingdom.

Not so, however, with the sons of toil; for here (it is stated that) "the opportunities for effecting a rise in the scale of life are so far more numerous than they are in old communities."

As illustrations of those who have risen from the ranks, the following are quoted:—"Two men went out in 1849, and were employed for a short time at 3s. 6d. a-day. One drives about in a dashing vehicle, and was the other day entertaining the Governor at the inauguration of an important work, which he was carrying out from the resources of his own capital; the other is a well-to-do land owner, and runs a winning horse at the metropolitan race meetings."

With a word respecting the products of the colony—to which additional interest is imparted in the fact that they occupy a prominent position in the present International Exhibition—we conclude this (probably too lengthy, but not the less interesting, we hope) notice.

Of the minerals, copper is in the ascendant; that found in the Burra-Burra mines—elsewhere referred to—being in greatest quantity, the most varied, and of most valuable quality. There are, however, numberless *other* mines of that kind besides. Wine manufacture is also carried on to some extent, and the several qualities—of which, however, we cannot speak—may be discussed in the samples exhibited in the South Australian court. Wool is a staple branch, and the colonists specially excel in its production; as they do likewise in various miscellaneous articles, too numerous here to particularize.

Our readers who visit the Exhibition—and no doubt the majority will—would improve their acquaintanceship with the colony, after this introduction, by personal inspection of the articles exhibited in the court referred to, and by inquiry from the gentleman in charge.

THE DESIGNS FOR NEW CARLISLE BRIDGE.

THE exhibition of these Designs is now closed to the public; and for those who had not an opportunity of attending it, we give particulars of the various sets of drawings submitted in this very important competition, in the order in which they are catalogued, and without prejudice to the merits of any that have the least claim to consideration.

It is to be hoped that the Committee will soon arrive at their decision, as some of the authors are naturally impatient on the subject. We believe that a delay has arisen on the question of who are to be the professional referees. It will not, however (we are assured), be protracted to a longer period than is avoidable.

Illustrations of some of the principal designs are in our engraver's hands, and one will, most probably, be given in next number.

No. of Design.	Name.	Address.	No. of Drawings in each Design.	Material.	Estimate.
1	Frazer & Son	Manchester	3	Iron	41,700

* See article under this head in the DUBLIN BUILDER for Dec. 15th, 1861.

One span, segmental Gothic arch, springing from about 10 feet above low watermark, and 2 ft. 3 in. below high water springs; masonry abutments, with figures on pedestals (one of which, by the way, either by accident or design, strongly resembles that of our national bard in College-street—a recommendation, or otherwise); parapet perforated with elaborate tracery, and having panelled central compartment, surmounted by a lamp. On plan, roadway is full width of Sackville-street, excepting pathways at either side. Line drawings neatly executed.

2	B. Redman	Westminster	3	Stone and iron	40,000
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Three spans; horizontal longitudinal girders, resting on two masonry piers erected on cylinders enclosing cement concrete, and supporting series of cross-girders, connected by 5-in. T irons, with boiler-plate arches, on which concrete and road metalling is placed; exterior of long girders has panels, in one of which an enlarged drawing shows "The harp that once," &c.; parapet ornamented with figures of sea-horses, and swans, tridents, &c.; dolphins with heads downwards, forming standards for railings, and surmounting metal cornice; bottom of girders 7 ft. high above high watermark; piers rusticated and niched ("a MERMAID" in one, and a species of "MARINE GORILLA" in the other), and carried high above roadway, tapering towards top, apparently designed to receive statuary; similar structures on abutments. Roadway shows two tramways of 12 ft. 6 in. each.

3	—	—	1	Iron and stone	—
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We abstain from giving the author's name, as either the drawing or the design is not noticeable—hoping, however, that he may do better next time.

4	Fredk. Johnston	London	3	Iron (under)	50,000
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Two spans; Gothic arches; panelled and perforated spandrels and parapet; central cast-iron cylinder; masonry abutments and counterforts.

5	"Virtus in arduis"	—	3	Iron	40,000
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One span; segmental arch springing about 2 ft. above high watermark, and rising to 12 ft. at crown; perforated spandrels; scroll ornamented parapet—the centre, to an extent of 30 ft. at either side, elevated, curved, ornamented with larger scroll, and crowned with triple and single lamps at centre and ends respectively. Two great triumphal masonry structures (each with three lofty arches, coupled column piers and single ditto wings, and elaborately sculptured superstructure) are seen rising to a considerable height over abutments built of masonry on timber piling and concrete. No plan given. An accompanying perspective is finished in very attractive style.

The correctness of the estimate, if intended to include the triumphal arches, is very questionable.

6	"Erin"	London	1	Iron and stone	40,000
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Three spans segmental, the central arch being more than double width of side ditto; spandrels panelled solid; parapet perforated; masonry piers and abutments, with lamps surmounting former, and diminutive figures latter. The national motto, "Domine salvam nostram Victoriā," is introduced on panels in parapet, over piers and abutments. Roadway of width prescribed, and has a gradient of 1 in 53 from centre to ends. Drawings unpretentious.

7	"Simplex"	—	6	Iron and stone	40,000
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Three spans; longitudinal lattice girders, slightly curved, and springing at about 8 ft. above high watermark, with T iron cross girders; corbelled coarse sustaining perforated parapet; piers and abutments of cut stone, the former niched for figures, pedimented over first stage, and surmounted at parapet level with tapering pedestal, on which rests triple lamp standards; pedestals on abutments carried to higher level, with erect figure at top, and a recumbent one at ends. Plan shows, central on roadway "a pavement for drivers of heavy vehicles, and for people crossing." These drawings are well executed, the sepia perspective especially so,

though incorrect as to surrounding buildings. The design, too, is commendable.

8	I. "Leather" A B C D	Dublin	6	Iron (under)	50,000
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Reference letter seems to have become detached from these drawings. They are hung too high, also, for our minute inspection; but judging from what we can see of them, we are not allowed to designate them as "modest merit in the shade."

9	"Pontifex"	—	5	Iron and stone	48,000
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Two designs: one shows three spans; elliptical arches, with masonry faces, rough punched voussoirs, piers and abutments to correspond; iron ribs, with cross girders sustaining roadway; bold capping cornice and balustraded parapet, with frequent piers, surmounted by urns; tall, tapering pedestals for sculptured groups, and trophies, with medallion panels, rise over piers and abutments. A well-handled perspective shows this design to great advantage; but the artist has depicted Sackville-street and Eden-quay with private instead of business houses—a fault in an otherwise good picture.

No. 2 (alternative) design shows substantially a similar arrangement, the decorative features being altered to suit the construction of the bridge in iron *exclusively*.

Drawings all creditable.

10	"Resurgam"	—	3	Iron	35,000
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One span, 138 feet, parabolic arch of boiler plates, springing below high watermark; spandrels trussed with bar iron; vertical parapet railing, with *teak* handrail, curved upwards towards pedestals on abutments, which are "intended to receive statues *ad libitum*." Ferry steps at each end, between existing quay walls and proposed abutments.

On plan and section, pathways are shown of "elm," laid diagonally, weathered towards "a zinc" channel. The roadway of Seyssel asphalt. Drawings laboured, but mediocre.

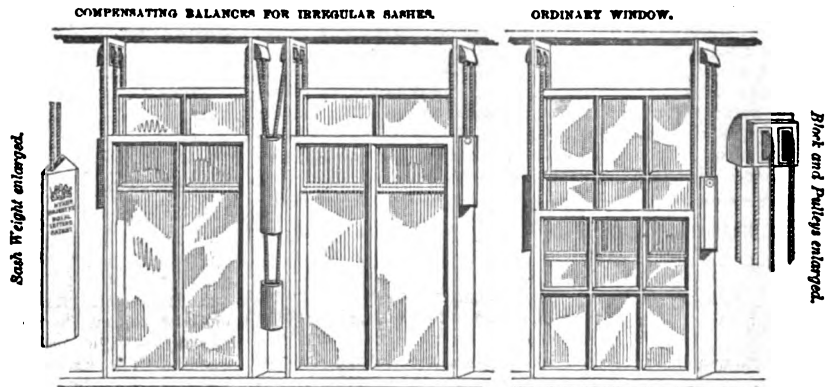
11	In Memoriam	—	2 2	Stone (under) Iron and stone	45,000
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Three designs. One of most comprehensive character, for a stone bridge in two spans; the others for a combined iron and stone bridge, in two spans likewise, but simpler, and varied in form of arches and other features. The former is shown in two charmingly executed perspectives—in a peculiar style which bespeaks the authorship—with points of view taken (as near as we can judge) at the Ballast Office corner and at Hodges' on Aston-quay respectively, and separated on a straining frame, by a view of an Albert Memorial, intended to form part of the composition. There are likewise geometrical drawings, or tracings rather. The spans are each 58 feet. The centre pier has a figure of Erin with a harp, sitting on the offset or starling, and is surmounted by a campanile, 7 feet square on plan, and rising about 22 feet above roadway, having statue in niche on each face, and high-pitched panelled stone roof, terminating with acorn vane. The spandrels of the bridge-arches are panelled and sculptured; parapet balustraded, and with frequent piers—that midway sustaining triple lamps. At abutments rise larger campaniles, 14 feet square, and about 46 feet high above roadway, the first stage having Corinthian columns and antæ (with entablature over), and intermediate niches with statues on each face. At the angles of main cornice are urns, and from this level the plan becomes octangular, an open structure, with arches on each face, and capped with roof corresponding in character with that on central pier, surmounting the whole; its connexion with the square basement being cleverly and tastefully treated, with pedimented and circular panelled projections and garlands of flowers. Access to a ferry is provided on the plan by winding steps at each abutment; but the mode is not shown on elevation. The main body of the Albert Memorial, designed to occupy the centre of the bridge, is square, having panels on each face (one containing a view of transept of 1851 Exhibition), and pedestals supporting female figures at the angles, rising above a stepped stylobate. The whole is surmounted by a pedestal and full-length figure of the Prince in standing posture. Apart from their other merits, these drawings show artistic ability of the *highest* order, and have attracted the special attention of visitors. The author urges, in a written statement accompanying, "the superiority of a stone structure to an iron," and especially so as regards its suitability to the architecture of the locality; also, that the works can be executed for the amount stated. We offer no remarks thereon, pending the decision.

(To be continued.)

IMPROVEMENTS IN THE CONSTRUCTION AND HANGING OF SASHES.

Our attention has been directed to a model (we wish, for the purpose of doing it justice, it was more complete) illustrating not only a new material for pulley-boxes and pulleys, but a new mode of hanging sashes. The invention is simple, practicable, and a decided improvement on the present system. It is claimed by the patentee, that the material employed—which is delf or earthenware — “being vitreous and incorrodible, great advantage is obtained by the thorough exemption from *rust, damp, or wet*, which often occurs when iron or other metal is used, rotting and breaking the window-cords;” also as regards the hanging, that “the movements of the sashes are easy and smooth, and as only one weight is required on each side, there is no entanglement or jamming.” It will be seen by reference to the accompanying engravings, that the one weight answers the purpose of *double* hanging, the cords of each sash passing over a roller or pulley inserted in the body of the weight, which is *hollowed* to receive it, and arranged to counterbalance properly, and



thence round the pulleys in the pulley-box. The weight being necessarily larger than the single ones now employed, the box is proportionately so—an objection to its adaptability in some cases, perhaps. The model is to be seen at Messrs. Smith and Wellstood's, Capel-street, Agents for the Patentee and Manufacturer, Mr. William M'Adam, Hyde Park Pottery-works, Glasgow.

FURTHER IMPEDIMENTS TO THE IMPROVEMENT OF CLONTARF.

BUT a short time since we recorded some evidences of progress in this long-neglected suburb, and were pleased in being afforded the opportunity of so doing, even as a partial set-off against previous restrictions—(which seem, by the way, to have been interpreted in a *wrong* spirit in a *certain* quarter). However, we have since become acquainted with existing impediments not only to the satisfactory development of those referred to, but to the probable future improvement of the locality, and which we feel it our duty now to notice. Those who are acquainted with the geological peculiarities of the County Dublin, know full well that “the North side” of the Liffey, and a portion of “the South,” as far as Blackrock neighbourhood, yields an excoellent (for certain purposes) building material, viz., Calp stone, and that nowhere in the former district is it of more suitable quality than in Clontarf and the general Barony of Coolock, which comprehends an area of 1,784 acres, including the Vernon estate and a portion of the Howth. What a matter of natural surprise must it therefore be that building operations on the former estate—on the surface of the very mine of the almost interminable strata of this excellent auxiliary—are *actually impeded for want of the material that lies a few feet beneath the soil in abundance?* And although it exists in such quantity in the district, there is but *one* quarry, situate at Killester, upon the estate of Lord Howth, in operation; from which there is such difficulty in obtaining supplies, that we know buildings are of necessity erected with stone brought from *very considerable* distances—frequently by canal some *fifty miles*, and thence with additional land carriage of possibly *three or four miles* to the site of works. Again we know they are carted from Finglas about *seven miles*, and from Rathgar sometimes—the new Roman Catholic church at Raheny having been chiefly built of stone drawn from the quarries in the latter neighbourhood. “Facts are stubborn things;” so to illustrate the matter more forcibly, we will adduce one more instance. There are two houses, now nearly completed, and another in progress next the Chapel-square, and owing, as we are informed, to the impossibility, within a reasonable period (if at all), of procuring a sufficient supply of calp from Killester quarries, the masonry of these houses is composed of granite drawn from Foxrock, a distance of 12 miles beyond the city on the south side!!!

This state of things is quite analogous to sending “coals to Newcastle.”

The stone from Killester quarries is (when obtainable) delivered within a distance of one mile, charged at *two shillings and ten pence per ton*, and for greater distances in proportion. Considering the short carriage, this price is without precedent. Now it seems that there were some time since two capital quarries opened in this locality, one at Warrenpoint, near Castle Avenue, on the main road, the other opposite the present quarry at Killester; yet stone is not now to be had from *either*. Why?—Who will answer?

Another impediment to the progress of this favoured suburb presents itself in the matter of sand; but to this it is but justice to remark, that similar restrictions to the foregoing do not apply. If we except “the *clay*” (so-called “sand”) from the banks of the Tolka, the material is not obtainable in the neighbourhood, and has to be brought by either of the canals, at a ruinous price, or carted at nearly equal cost from Howth.

Brick-clay, too, is in abundance, but is turned to no purpose, and bricks have to be brought to Newcomen bridge, and carted the remainder of the distance to Clontarf, involving a more than serious item.

To remedy these, might it not be practicable to construct a small dock and pier, extending into the sea to a sufficient length to admit of lighters delivering therein from Kingstown, Dalkey, Howth, &c. But then another question arises—Who will do it? Well, we know who *ought*; and more—that the present primitive state of things should not exist, acting, as it does, as an insuperable barrier to the improvement of a locality, the rental of which would be quadrupled in a few years, if a different course were pursued.

DISCOVERY OF A SKELETON.

WE have just learned that on yesterday, while Mr. John Nolan, contractor for the new building about to be erected at the rear of “Tyronne House,” on the premises of the Commissioners of National Education, was causing excavations to be made therefor, his workmen came on a perfect skeleton of a human being, with skull thoroughly perforated by a *bullet-hole*, and apparently buried for a great number of years. The circumstance will, no doubt, provoke some inquiry.

“THE OPERATIVE.”

A MOST influential meeting of delegates from the *carpenters* (two bodies), the *brick and stone layers* (do.), the *plasterers*, the *smiths*, the *slaters*, the *stonecutters*, the *hatters*, the *bakers*, the *tailors*, the *printers*, the *victuallers*, the *house-painters*, &c., was held yesterday evening in the hall of the lastnamed body in South King-street, to adopt measures for supporting “*The Operative*” journal. Mr. Farrell (of the victualler's society) occupied the chair. An extensive patronage was *guaranteed* by various societies; but it was deemed desirable—in order to give all the officials present as well as those absent an opportunity of communicating with the members of their respective societies—to adjourn the meeting to next Friday evening week, when the operatives of Dublin will be summoned by circular and advertisements to attend. It is most gratifying to find our local trades coming forward so spiritedly for a common purpose—viz., the social and moral elevation of the classes—their education and recreation—free from political or sectarian considerations. Mr. Ward, president of the house-painters' society, acted efficiently as honorary-secretary. A most numerous meeting is expected, and “*The Operative*” will appear on FIRST OF SEPTEMBER in an improved and (we believe) enlarged form.

BELFAST AND NORTH OF IRELAND AWARDS.—Amongst the exhibitors from the north of Ireland at the great World's show of 1862 who have obtained distinction are Messrs. Musgrave Brothers, High-street, Belfast, to whom has been awarded a medal in Class IX., “for their iron stalls for cattle and horses.” In Class XXXI., Sec. A., they obtained honourable mention “for excellence of manufacture in stable fittings.” There is a slight error here, for the articles in the latter class were not stable-fittings, but iron cow-houses, and piggeries.

LABOURERS' COTTAGES, AND THEIR BEARING UPON ARCHITECTURE.

(Conclusion.)

I HAVE as yet said nothing upon one part of my proposed subject. —The bearing of Cottage-building upon Architecture, properly so called. There are several general observations which I have made which obviously apply equally to the simplest and the most ornate buildings; and there is one particular feature, the cottage treatment of which seems to me, though unexpectedly, yet exactly to tally, with what I should recommend for larger houses also,—I mean the treatment of the staircase. We have seen how, in the cottage, by far the most economical, as to space and cost, as well as the most convenient plan, is that which attaches it to, not complicates it with, the general block of the house. I think the same principle should be applied to all staircases, making them rather excrescences, or annexes, than contained within the main walls of the house. I hardly ever see a plan for a modern house, where the insertion of the staircase does not seem to spoil the arrangement and communication of the rooms—at any rate to curtail the hall or darken the passages; and I have seldom found a difficulty in finding a place where, if the staircase were annexed to the general block of the building, the ill-arrangement might not be obviated, and many additional conveniences gained. As to the lighting and airiness of the staircase itself, and the external beauty so naturally obtained, I need not say a word. We all know how much the finest examples of old domestic architecture owe, both internally and externally, to this separate treatment of the staircase. I would almost believe that, by the improved combination of spaces, which this gives to the general plan, even the additional expense would be small. Certainly, if the smallest margin were allowed for effect or ornamentation, nowhere would it be better bestowed; and the variety and originality of design which such a feature would offer, and almost necessitate, would, I think, advantageously compensate for the absence of much applied decoration in other parts.

Nor need I say how strictly applicable to the highest class of buildings are those principles which are absolutely imperative in the cottage: viz., that effect should be obtained not by straining to produce it, but by carrying out in good proportion, and combining in due harmony, what is essentially requisite for the convenience of the house; how entirely all shams and concealed constructions are to be eschewed; how the interior wants of the house must give the character to the outward elevation, and not a preconceived elevation warp the interior arrangements to its lines. I am convinced that, of all the so-called picturesque cottages built during this century, the external view was drawn before the ground plan was designed—indeed, fifty years ago, I think that this must have been the professional practice with regard to all classes of buildings. And even now, I fear, the picturesque idea of what is wanted for a certain site floats through the mind, before the prosaic wants of the future occupier are listened to.

But there is yet one still more distinctive practical bearing of cottage-building upon high architecture which I would insist upon. It is a Utopian idea to suppose that we shall ever again acquiesce in a single national style of architecture. The ages of the overpowering influences of master-minds, and of the crushing power of dominant majorities, are gone by, in that as in other things. Individual mind will assert its independence, though often, indeed, more to the satisfaction of the person than of the community. And we may expect, more and more, that crotchets will be prominent, and that "follies" will be built—only this divergiment will become so common that they will not longer be called "follies." Still, one style may, by the most competent judges, be deemed more suited to our climate and requirements than another, and, if ably treated and proved by experience to be so, it will become generally adopted, and so, in a limited sense, be national. For ultimate success, it is necessary that it be both founded on the examples of past times and developed to the exigencies of the present. There is nothing good in old architecture which it must eschew—nothing good in new discoveries of material or construction which it must not adopt. It must be free alike from pedantry and new-fangledness. Eclectic, in one sense, it must be; but it must have a pervading principle, and this, I think, it must seek whence the principles of all our great institutions are derived in the past history of our own country. But the style will only establish itself by its success. No foregone theory is of any avail. It must prove its own self "*Solvitur ædificando*." I need not say that I myself would have no confidence in the permanence or prevalence of any style in England that was not founded on our old English architecture; and that that is a feeling ingrained in the national mind, the history of cottage building shows. Wherever far in the country, away from schools of design or provincial Pecksniffs, building has gone on traditionally, uninterfered with by lectures or books, there the old English style has prevailed; and what are really cottages of na-

tional Gothic (if I must use that term) have been built within the last fifty years.

While the fashion of the day raised the neighbouring squire's hall in Jacobean, Caroline, Dutch, Palladian, Grecian, mock-Gothic, Italian, Byzantine, one after the other, whatever happened to be the prevailing mode in London circles, the village mason in many stone districts of the midland counties went on by his rule of thumb, following the old forms of doors and windows, grooving the same mouldings, fixing on the same heavy binges, glazing with the same quarries—making the modest house he was building for himself the veritable offspring of the abbey, and the castles, and the granges which were lying neglected in ruin around him. It is curious how, every now and then, in out-of-the-way villages, we come to windows inserted in the churches within the last two hundred years infinitely more true in character and detail to the style of the church than the insertions of revived Gothicism. But in cottages and small farm-houses the tradition of national style was absolutely unbroken; the mouldings, indeed, latterly became more flat, and the elevations more insipid; the impress of the outside world was visible enough upon them to show that it was not mere Chinese copyism, but a living style; but so continuous was it, that I feel sure that in the county of Northamptonshire alone a diligent student might make a catena of such buildings from the fifteenth century to the nineteenth, from the inscribed dates still existing, without an interval of more than ten or fifteen years in any generation.

But this tradition has now almost, if not entirely, passed away. With the carpenter it is certainly extinct, and his moulding planes are now of the so-called classical type, and the few books to which he has recourse all point to the same stereotyped patterns. All handicraft work has now got into this one groove; and architects will, I think, bear me out in saying, that if a common workman (I will not say in ecclesiastical, for the demand for churchwork has already formed a school of its own, but) in domestic work, if a common workman is left for a moment to his own devices, however mediæval may be the character of the designs on which he is engaged, he at once falls into the conventional classic style of his apprenticeship. It is this which gives an unreal character to the prevalent mediæval architecture. A house is built, in which the architect has given the most correct forms for all the leading features, nay, has drawn out all the details, preceded or characteristically developed, in the style he has adopted; but no sooner is the workman left to finish off by himself a shutter-panel or a door-handle, than the vulgarest type of the workshop is straightway introduced, marring the effect and reality of the whole composition.

Now to meet this, I know of no way but by established architects condescending to give to the cottage-builder the most elegant yet the simplest forms that the commonest use of brick and wood can adopt. Architecture of course has risen, historically, from the hut to the palace; but, when once established as an art, it has descended in its influence from the palace to the hut.

It would be pedantry to suppose it possible to reverse this order now; and to argue that our new style, or new development, must begin from the simple elements of good cottage building; and so rise till it modified the mansion or the church. But practically, I believe, we shall never have a real, living style, till we have imbued the workman with true principles in the use of the wood and the brick with which he makes the doors and cornices of his own dwelling. We must, in the instance of the carpenter, teach his good sense to use the simple chamfer, and his fancy to design the pleasing stop-chamfer, in the place of the mouldings and dovetailing, to which he is wedded. We must make him, as it were, begin afresh; using wood in the bold natural style in which our ancestors used it five centuries ago, but without pedantically tying him to any normal forms. If we once get true principles of carpentering into our cottages and our builders' workshops, we should have the base of a national style to work upon, and need have no fear of missing a right development. Now, in the commonest buildings there is a waste of labour in bad forms and surface polish, which are much more costly than well-proportioned realities; and the simple beauty of constructional form is almost always distasteful to the workman, and he labours at it against the grain. How we are to attain the outward truth of construction, whether by beginning to educate in our workshops and cottages, or by carrying it down to this humbler sphere by the successful results in higher art, it is not for me to say; but I believe that if we could, as a rule, get rid of all shams and false ornament in our cottages, the improvement would gradually rise upwards, and our builders would not be, as now, working in a conventional groove of their own, unpermeated by any living principle, and with no sympathy with the higher art of the architect.

It is on this ground that I would ask the most exalted architect not to deem cottage building beneath his care. I think he would there learn *reality*. He would work up from the rudest

form of materials and constitutional necessities, to the most precious substances and the highest art. If I were conducting an architectural studio, I should first put before the student, not an elaborate frieze, or a diapered panelling to copy—not a portion of the Parthenon or of Westminster Abbey—but a well-designed and well-fitted cottage; make him learn how to fix the lintel of a door in carpentry, or chamfer the brick of a window-jamb—and so gradually carry him onwards to higher things. We seem greatly to want, in an educational view, a return to simplicity. If there is an architectural sketching club, I wish they would take for a subject at their next meeting a five-chambered cottage. I believe they would find it a more difficult problem than a Palladian hotel, or a mediæval town-hall. But till real genius has undertaken this, and given the key-note to the proportions of windows and chimneys, and the details of doors and staircases, we must be content with the abortions which exhibit themselves at model cottages, many of which, while failing in real accommodation, are eyesores to every educated beholder, and seem absolutely to rejoice in their ugliness, as if the absence of beauty ensured convenience of plan. I am convinced that there is no necessary connexion of ugliness with usefulness in a cottage, more than any other building. Indeed, I believe that the true expression of usefulness will be always beautiful; but then, in the present state of art-work education, we cannot leave this expression to the bricklayer and the carpenter, but must look to the refined mind of the true architect to descend (if it be so considered) to design the building under which the man, who carries out his noblest ideas into form, lives day by day, and imbibes unconscious lessons.

A simple "handbook" of good primitive forms for wood and brick, and stone construction—with the component parts of structures in good proportion, and working drawings and sections of details in each material, such as might be required for their own homes, put into the hands of the apprentices of the present generation, might in time work a great and glorious revolution in British art. I wish the idea would commend itself to some one of the distinguished professional members of our architectural museum, which professes especially to take the art-workman under its care.

The idea may seem too trivial and simple; but I own, that among the many more ambitious propositions for raising the character of our national architecture, I can myself see no one that has better promise of ultimate success.

IRISH SOCIAL AND INDUSTRIAL STATISTICS.—V.

SANITARY REFORM, DUBLIN.

THE trite truism that "Prevention is better than cure," has a curious and, perhaps, not sufficiently-appreciated corollary, that while mankind is feeble in curing, it is all-powerful in preventing disease. In a recent but too memorable and melancholy instance, we saw all that science, all that professional skill, all that devoted zeal could suggest, exerted, and exerted in vain, to save the life of an illustrious patient, suffering under a disease (typhoid fever) proven to belong to the category of those which are perfectly within the power of mankind to altogether avert or remove from them, as they have removed leprosy, small pox, and the sweating sickness from the list of ills to which human flesh is heir to; and thus, while we are saddened by the spectacle of a Prince—"noble in intellect, infinite in faculties"—sinking under a foe whose progress no human power could arrest, we are reassured by the reflection, that the poorest and the humblest in the land may, by a little care and a little precaution, insure his household and himself from being ever assailed by a scourge so terrible in its operation. He may place himself within an impregnable fortress, and defy an enemy without, who, if but admitted within, will destroy with a vigour which can be but little checked by human skill or science.

It is just two centuries since curious and philosophical inquirers had their attention for the first time forcibly arrested by some exceedingly remarkable facts, brought to light in the "Bills of Mortality," published in London, and Dublin, and other large cities. It was observed that in parishes where narrow streets in which all manner of filth prevailed, the duties of the sexton were much more onerous than in the other parishes where the houses were better ventilated and the streets more cleanly; and as this was found to happen everywhere over Europe, and with surprising regularity in all seasons and periods, the truth began to dawn upon men's minds, that there were other modes of poisoning besides with arsenic or "Mistress" Turner's Mixture—that really and positively men, women, and children might be disposed of just as

effectually by the inhalation of strong doses, frequently repeated, of poisoned air, the gaseous exhalations of decomposing animal and vegetable matter, or by their living daily and nightly in rooms and garments, and in a skin allowed to remain in unwashed and perpetual filth!

These and some kindred discoveries having been made, "sanitary reform" came into vogue; and amongst our practical English neighbours, streets began to be widened, sewers constructed to carry away the excrementia, and the scavenger and nuisance-inspector were called into existence. Among our worthy ancestors, then as now, the genius of loquacity reigned paramount, and they, like modern "patriots," talked and wrote largely, but performed moderately. In Dublin (to whose sanitary progress we devote the present article), early in the seventeenth century, "Bills of Mortality" for all the parishes were made out and published, not very regularly, however, from time to time. In 1683, when Sir W. Petty wrote his "Observations," these Bills had become the texts and the subjects for learned inquiry and scientific deductions. The mortality from the typhus, or "the dirt fever," was shown to be large in Ireland generally, and in Dublin particularly. So striking, indeed, did this excessive mortality appear to the medical writers of that period, that typhus was called by them "the Irish Plague." In 1682, when the population of Dublin was but 50,000, the Bill of Mortality for the year gave no less than 2,262 deaths from typhus alone. In the war of the Revolution of 1688, and during the years of commotion subsequently, men's minds were but little disposed towards the promotion of social reforms, and accordingly we find some of the most destructive typhoid epidemics occurring in the first half of the last century. In 1740-41, we have it stated on the authority of Rutty, that no less than *one-fifth* of the inhabitants of Dublin were carried off by typhus fever. The era of improvement, which commenced about 1750, appears not to have been altogether universal in the scope of its benign influences. In the north and south-east ends of the metropolis, new streets and squares sprang into existence, in architecture and domestic arrangement immeasurably superior to former structures; but while this occurred in these rich and fashionable quarters, the poorer localities remained in pretty much their previous condition, so much so, indeed, that when the Rev. James Whitelaw published in 1798 the results of his highly-benevolent investigations into the condition of the Liberty and kindred localities, the gay, the polite, and the learned were astounded at finding the highest and the lowest forms of human existence side by side in the same city, with hardly a line of demarcation between. In 1817, '18, and '19, the world was again startled by the ravages of "Irish typhus." According to Drs. Barker and Cheyne, no less than *one-fourth* of the population suffered from its attacks—the number admitted to the Dublin fever hospitals between September, 1817, and September, 1819, being over 42,000! The cholera of 1832 and '33 took the place of the national epidemic; but, in 1847, typhus returned with nearly all its ancient virulence.

So far, then, we can find no reason to congratulate ourselves on "sanitary progress," where most needed! We want, it is true, the complete statistical record to perfectly demonstrate the needful statistical facts; but when we have before us, that a disease peculiar to a filthy and neglected society or community, appearing and re-appearing at certain, we may almost say, regulated intervals, the conclusion, if resting upon this alone, would be sufficiently obvious and irresistible; but we are by no means destitute of further proofs and illustrations. In 1841, for the first time the Census Commissioners made an attempt—the best in their power to make—to ascertain the precise sanitary condition of Ireland in general, and Dublin in particular. To the ordinary Census forms issued that year to the public, they appended a schedule, to be filled up by every householder, with the names, ages, and causes of death of all the members of his family deceased between '31 and '41. This, although (we repeat) the best the Commissioners could employ, was a most imperfect mode of collecting the required statistics. In the course of ten years many persons die having no relatives in this country, the surviving relatives of many others, before the end of the tenth year, have themselves died off or emigrated, and it may but too often happen that this period of ten years is sufficiently long to remove all memory of the departed's name or circumstances from the mind of the living. We may, then, learn without surprise, that all those causes combined rendered the "Death Tables" defective to a large extent, to so much as from 25 to 30 per cent., as estimated by the Commissioners—that is, out of every 100 deaths which actually occurred, no more than from 70 to 75 per cent. were recorded by relatives in filling up their Census papers.

* It is a strange fact, that Petty, in these "Observations," suggests the publication of weekly and quarterly Bills of Mortality. Now, in 1862, nearly two centuries after Petty wrote, we have yet to seek for the establishment of this guide to our sanitary condition. Such is our national progress in civilization!

Notwithstanding this serious drawback, the efforts of the Commissioners to reveal the sanitary condition of the country were eminently successful; their tables, if they do not anywhere give us the full extent of the mortality, they everywhere indicate the general condition, good, bad, or indifferent, of the locality. In the case of Dublin, these indications are of startling significance, and should suffice to establish beyond question or cavil the deplorably neglected state of the poorer sections of the city. Dr. Wilde, one of the Commissioners, charged himself with the duty of specially reporting on the sanitary condition of Dublin. He classified the streets under the denominations of first, second, third, and fourth-rate, as they were found to be occupied by the higher, the middle, and the lower classes in society, and then analysing the mortality returns from each, he ascertained that for every one death occurring among a population of say 100 in the first-class streets, three deaths occurred in a like population living in the streets of the fourth class. In 1851, the Commissioners taking similar steps to ascertain the facts, obtained results precisely similar; and it is thus painfully evident, that the enormously excessive mortality prevailing in such places as "the Coombe," "the Poddle," "Pimlico," &c., is not of accidental occurrence in exceptional periods, but is the ordinary and usual—we might almost say the normal—state of things in these "plague-spots" in our city.

AN ENGINEERING "FLANK MOVEMENT."

THE report of the Waterworks Committee was brought up for reading at a special meeting of the Municipal Council on Monday the 28th ult., and Dr. Gray—amongst other matters comprised in an able and lucid statement—remarked that, by making a deviation from the original plans as to the site of the distributory reservoir at Stillorgan, and in the general direction of the water-course thence to the city, a very considerable saving could be effected, and even greater advantages thereby secured. The Doctor explained that "The lands embraced within the limits of that reservoir consisted partly of the property of Messrs. Wilson and Stokes, partly of Mr. Bentley, and partly of Miss Guinness. Several 'claims' for compensation were made by parties whose lands were to be affected by the running of the pipes from the Carrickmines station to that at Stillorgan, where the reservoir was to be constructed, and these claims amounted to £55,575, exclusive of Miss Guinness, for which no sum was specified; but, assuming it to have been anything like the others, it would have been over ten thousand pounds, which would make the total claims sent in at least £65,575. This large amount, especially the claim made by Mr. Bentley, which amounted to £39,925, induced the committee to consider whether it would not be possible, without detriment to the works, and with pecuniary advantage to the citizens, to avoid any injurious interference with the lands and premises in respect of which those large claims for compensation were made." Accordingly, after careful personal examination of the district, and after consulting with Sir John McNeill, C.E., as to the feasibility of the diversion, Dr. Gray entered into negotiations with Mr. Wilson for a new site on which to construct an enlarged reservoir, which would contain *eight or ten days'* supply always available—as compared with *four or five days* provided by the previously intended reservoir—and this the Doctor announced had been obtained for £10,200!

With reference to "the pipe track," as there were five or six claimants, the difficulties were so great that the Committee thought, when they were offered the whole tract of land by one proprietor, and when they found, by boring and examining the sub-soil and the underlying rocks, that his land was far the better class of land for such a purpose, and that they could get rid of all disputation by dealing with him, the advantages appeared so great, that they unanimously resolved to adopt the recommendation made in his report in reference to his land. The agreement with Mr. Wilson is for twenty-two acres, with power to take *three acres more* on same terms. (Dr. Gray here read an amended claim, submitted that day by Mr. Bentley, stating his willingness to accept £10,000, as compensation for all damages by reason of pipes or reservoir, if the works be completed against 1st April, 1864, or if against 1st April, 1863, £8,000; a public road thirty feet wide, between the Station and Leopardstown-road, to be provided by the Committee).

There are alarming statements (continued Dr. Gray) with regard to damage to the railway, all of which engineers know can be secured against by an additional thickness of 1-16th of an inch. In reply to Alderman Hudson, Dr. Gray then stated, that a specific arrangement has been made with the Company, subject to the approval of the House and Parliament, and that they be held harmless against damage, which any one understanding the subject will undertake to do for £5 a-year.

After a lengthened discussion, in which Aldermen Martin, Carroll, Reynolds, and Atkinson—with Messrs. Jameson, Whelan, Durdin, Pilkington, T.C.'s—joined, Alderman Hudson said the

report was certainly a most able one, and therefore demanded most careful consideration. He gave Dr. Gray credit when he was working out these points, for he thought he was playing off Stokes and Wilson against Bentley, and would thereby materially reduce the sum which would fall upon the public. He thought Dr. Gray made an able "FLANK MOVEMENT," and that the public would get the benefit of it; and if that were so, it was the duty of them all to support him. But while that able "FLANK MOVEMENT" of Stokes and Wilson v. Bentley was being made, he (Alderman Hudson) contemplated *another* movement; and if he showed that his proposition would be advantageous to the citizens, he thought gentlemen at all sides would support it. The important portion of Mr. Bentley's claim was for injury to his property by the danger arising from the pipes; but Dr. Gray, unmoved by motives of private friendship, as he stated, said he would relieve the Bentleys from all uneasiness on this head, by bringing the pipes along the railway into Mr. Wilson's land. Now, after bringing the pipes along the railway, did it occur to them that they might as well take Mr. Bentley's land at £10 an acre, instead of Mr. Wilson's at £14 an acre? He (Alderman Hudson) could only account for that proposition not being made by the fact, that it was only that day Mr. Bentley's modified claim was sent in to the Committee. He was told that Mr. Bentley's land ran to the edge of the railway, and adjoined the land proposed to be taken from Mr. Wilson. Twenty-two acres of land at £10 an acre, taken at 25 years' purchase, would amount to £5,500. The sum to be paid to the Railway Company would, at 25 years' purchase, amount to £2,500, making a total of £8,000. If that were deducted from the £10,200 under the other arrangement, there would be a saving of £2,200. Dr. Gray was a clever man, but he could not see forty feet into the ground; and as no sinking had as yet been made, he could not speak of the nature or formation of the soil.

Dr. Gray—I beg to correct you: sinkings have been made. I personally inspected the sinking of some of them, and examined the results of others.

Alderman Hudson—It was proposed to take these lands at a rent, and the object was to put a part of what should be paid out of the £300,000 on the rates of the city, and that part amounting to 25 years' purchase of the rents, or £7,700. These were his objections to the report, and the amendment he had to propose was—"That, as the expenditure for the Varttry water supply had been limited by law to £300,000, it would be an avoidance of the Act to take land for this purpose at a rent to be paid out of the city rates, and that, therefore, any land to be taken for such purposes should be provided and paid for out of the sum of £300,000; and that, previous to making an arrangement for the purchase of land, the Committee be requested to report upon the expediency of taking twenty-two acres of land at a rent of £10 per year from Mr. Bentley, and of conducting the water mains along the railway to the junction with Mr. Bentley's land, and thus avoid all claims from other parties for damage."

Mr. Durdin seconded the amendment; for which 14 voted, and 27 against. The report (excepting a clause relating to an annual increase of the salary of Mr. Neville, the Borough Engineer) was then adopted.

Such was the result of this great strategetic "*flank movement*," and the "*counter movement*"—the *denouement* of a great *sensation*!

THE LATEST DODGE IN LONDON.—Standing recently at the corner of a street in Blackfriars-road, we noticed two gents in a taxicab, tidily appointed, stop the vehicle, and one of them, with surprising volubility, to deliver a panegyric on his own self-denying propensities for disposing of the sterling coin of her Majesty's realm, and from purely affectionate consideration for his brother subjects, at reduced cost. A florin for *one shilling and ninepence*, a shilling for *tenpence*, sixpence for *fivepence*, and so on in proportion. Believing that this *must* have been a trick to dispose of *base* coin, we put the undertaking to the test, but found a *florin* purchased for 1s. 9d. *perfectly genuine*, as it was in every other case likewise. Presently a very considerable crowd collected, and many had succeeded in investing on the scale of profit as above, when lo, "*the change*" became exhausted and the game was altered. A box—not Pandora's—but one well stocked with sundry articles of jewellery—viz., wedding rings, watch chains, &c., &c., was next produced to the credulous and admiring multitude, who, relying on the assurance that the same philanthropy of spirit was being extended in this transaction as in the previous *cash* one, invested eagerly; and before time was afforded for minute examination of *the quality*, the blue-clad civic functionary, whose business it is to disperse a crowd obstructing the thoroughfare, is supposed to be seen in the distance, and consequently "the mercantile gentlemen" beat a speedy retreat, leaving the *few* fortunates to indulge in self-congratulations, and the *many*, *very many* dupes to ponder on the maxim, that "*experience teaches*."

MAGEE COLLEGE, LONDONDERRY.

In our recent special notice of the city of Londonderry—under the head of "Town's Survey"—we referred, amongst other buildings for which it is distinguished, to the New Magee College; and in accordance with the promise at the time conveyed, we now present our readers with an engraving* thereof.

The plans for this structure were adopted in competition nine years ago—viz., in the year 1853; but a change of site and other circumstances delayed the commencement of the work for some years after.

The building as erected is only a portion of the original plan, embracing only half the class-rooms, and not including the professors' residences; but it was so arranged as to be complete as it stands, and not to present an unfinished appearance.

The exterior is faced with cut stone (from the Bishopbridge quarries near Glasgow, of which Messrs. Leadbetter, Govan and Company are proprietors), which, together with the other works throughout, were executed in most superior style by Mr. Matthew McClelland of Derry, an eminent builder, under the superintendence of the late County Surveyor of Londonderry, Mr. Stewart Gordon, C.E. The design, however, was furnished by Mr. E. P. Gribbon of Dublin, who was also architect of the Presbyterian Church on Ormond-quay in this city, and various other creditable productions; but who of late appears to have given himself up to the more profitable occupation of an arbitrator and building surveyor, being, as is well known, Government Quantity Surveyor to the War Department, besides being one of the most popular building surveyors in ordinary practice.

The Magee College, as we mentioned on a former occasion, is distinguished, like some other works of Mr. Gribbon, for great effect at small cost, and is an ornament to the prosperous city of Londonderry, of which the inhabitants are justly proud. Though we seldom are inclined to pronounce judgment on the works of living architects, we must say as regards this, that we feel pleasure in congratulating the architect and trustees on the successful issue of their undertaking.

"BURST A BOILER"—RAILWAY COMPANY'S LIABILITIES.

A CURIOUS illustration of "the glorious uncertainty of the law" has recently been given in the case of *Williken v. London and North Western Railway Company*—tried in London at Guildhall, before Baron Martin and a special jury—wherein plaintiff (a clergyman) sought damages for injuries sustained by reason of the bursting of one of the company's engines. The train was going at full speed on a level road at the time the accident occurred. It was proved that the boiler was ten years old; had been repaired in 1857, but was not sound when examined by Captain Taylor of the Board of Trade, who reported that "corrosion had been actively going on in several parts of it, and the metal had been eaten away along two seams of rivets in an irregular manner, and had been reduced in places to little—if any—more than one-sixteenth of an inch." Witnesses were called to exonerate the company from blame for employing the engine in the public service after its defective—nay, dangerous—state had been pointed out. The judge, in charging the jury, left it to their consideration, in the simple abstract, as to whether the accident was *unavoidable*, or arose from *positive negligence*. The jury could not *unanimously* solve the problem, and were discharged WITHOUT A VERDICT. Inferences to be drawn on this result by the public are consequently—first, that there is no generally-admitted use in Government inspection of railways or the rolling stock appertaining thereto; secondly, that no matter how well aware the officers of a railway company may be of the positive danger to the lives of travellers on their line, accruing by reason of defective construction in any part, it may be questionable if the company is liable for any consequences that may follow, however disastrous. The *in*-decision refers to the principle, whether in the positive or the superlative degree. We wonder much would an "Irish" jury be so divided on the point, where the public welfare is involved?

* Since the photograph from which our engraver transferred this view to the wood was taken, a flight of central steps leading to terrace has been constructed, but which not being aware of he was compelled to omit.

THE REGISTRATION QUESTION.

WITH pleasure we announce that steps are being taken to insure a practical solution of this question during the next Session of Parliament. Hitherto every attempt has broken down, owing to the introduction of some clause in favour of Police Constables, Clerks of Poor-law Unions, Marriage Registrars, or Dispensary Practitioners, as the sole appointed agents for carrying the Act into effect. No such peculiarity has been established in the English system; and much as our successive Irish Chief Secretaries may be impressed with the idea that Ireland requires *peculiar* legislation, in this instance at least, their repeated failures ought to convince even them that the true solution is to be found in the simple adoption of the terms of the English Act, and in making the office of Registrar in Ireland as in England, not an *ex-officio* appendage to any other department, civil or military, but one to be held by a "fit and proper person," wherever to be found, and for so long as, and no longer than such an individual should continue as "fit and proper" in the discharge of his duties.

We subjoin copy of a letter received by Mr. M'Evoy (Hon. Secretary to the Committee) from Dr. Henry Letheby, Chief Medical Officer of Health in the London Metropolitan District, who has occupied this position for a number of years, and who, by a series of most valuable reports on the sanitary condition of the metropolis, has done more to arrest public attention to this most important subject, than perhaps any other living man.

His strong expression of opinion we esteem most opportune, and commend it to the particular consideration of our readers. Mr. M'Evoy, has also, as we are apprised, been favoured with communications from Lord Stanley, M.P., Mr. Gregory, M.P., Colonel Dunne, M.P., Mr. R. P. Dawson, M.P., and Sir E. Grogan, M.P., besides a number of gentlemen in various parts of Ireland friendly to sanitary progress:—

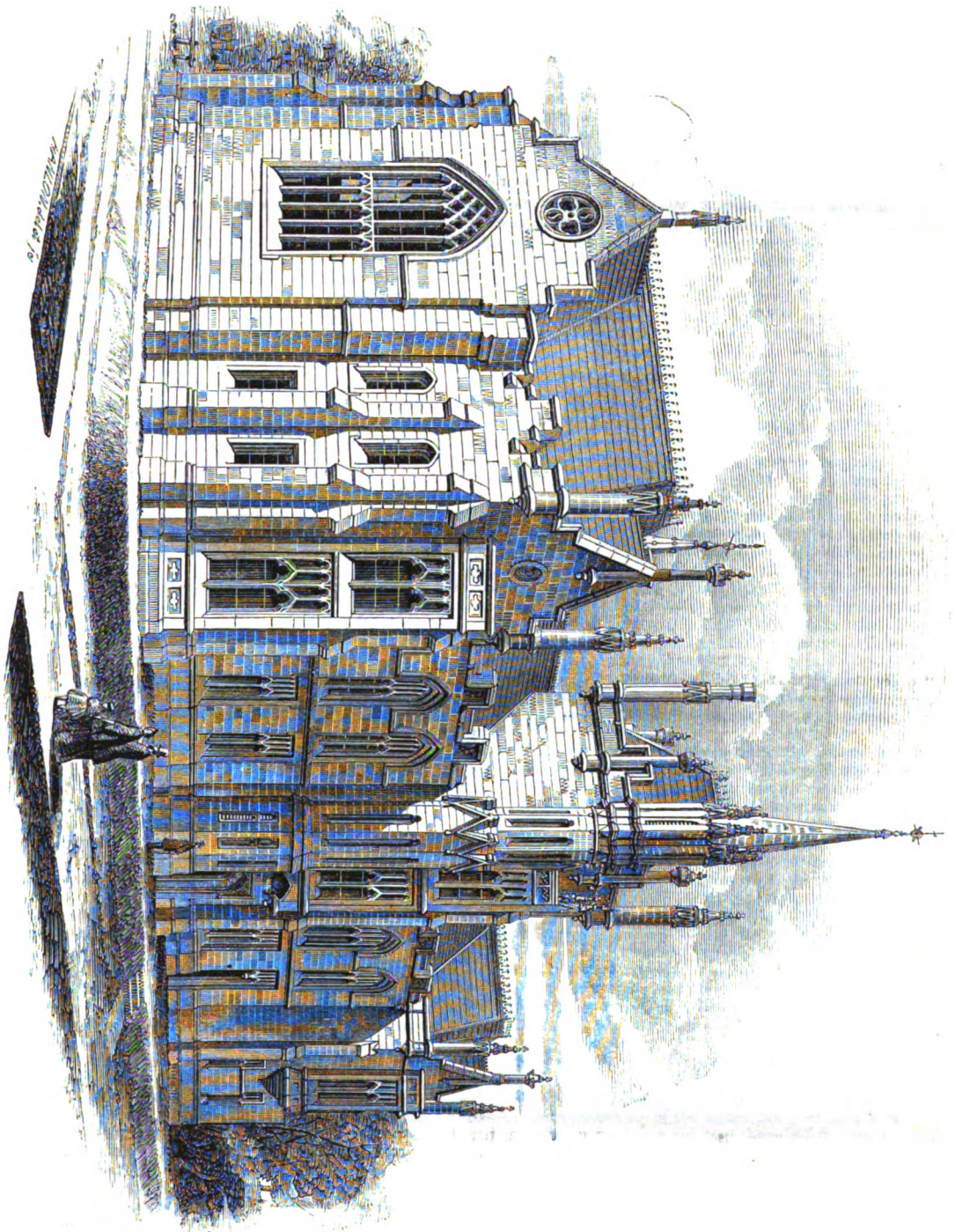
"41, Finsbury-square, London, July 17.

"DEAR SIR,—I have duly received your letter, with its enclosure, on the subject of Births and Deaths Registration in Ireland; and I am surprised, considering how valuable the system of registration is to the whole community of this country, that there should be the slightest necessity for any expression of opinion as to its importance in any place. A Government or a people must be very negligent of its own concerns, and very ignorant of sanitary matters, that requires to be told that a registration of births and deaths, and the causes of deaths, to the very fullest particular, is a national necessity.—I remain, dear sir, yours truly,

"H. LETHEBY."

LAYING THE FOUNDATION-STONE OF THE ROMAN CATHOLIC UNIVERSITY.

ON Sunday, the 20th ult., at about six o'clock, p.m.—and if not actually in the presence, at least in the company of some 30,000 people, who for four hours previously joined in procession through some of the principal thoroughfares of the city, to the site of the intended building—the first stone of the future Catholic University was laid, with pomp and ceremony, at Drunconra, on a site of thirty-three acres, adjoining the well-known "Bishop's Fields." The Most Rev. Dr. Hughes, Archbishop of New York, officiated on the occasion, accompanied by numerous foreign and local dignitaries and clergy of the Roman Catholic Church, and in presence of a vast assemblage of members of parliament, mayors of cities and towns, representatives of corporate bodies, magistrates, gentry, and "the bone and sinew" of the land—the artisan and working classes. The latter, where belonging to societies, marched through the prescribed route in regular order, carrying banners—some of which were very handsome—and preceded by brass and other bands. The respectable demeanour and dress of the artisans was a subject of much pleasing comment, even amongst those who did not sympathize with the object of the display, and the entire proceeding passed off without the slightest disturbance, or necessity for interference on the part of the police. Of the numerous trade societies that walked in the procession, the carpenters of Gloucester-street and Temple-bar respectively, the bricklayers of Cuffe and Halston-street respectively, the plasterers, the bakers, the house-painters, stonecutters, the slaters, the plumbers, the smiths, the tailors, the shoemakers, &c., &c., were amongst the most noteworthy. Various commercial bodies, religious confraternities, tontine societies, national brotherhoods, &c., also assisted. The stone was lowered into its place under the direction of Mr. J. J. M'Carthy, Architect, Professor of Architecture to the University. In the evening a grand banquet took place at All-Hallowes College.



THE MAGGE COLLEGE, LONDONDERRY—MR. E. P. GIBBON, ARCHITECT.

THE LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

A BUILDER'S VISIT TO THE INTERNATIONAL EXHIBITION.*

THE great assemblage of industrial productions, collected under shadow of the domes of South Kensington, is capable of affording so many illustrations of the past, present, and probable future states of the arts and civilization of the world, and so many lessons to warn and guide the student, or even the mere practical man, that it behoves all who feel interested in the progressive development of our race to strive to discover the real import of those illustrations and lessons. Treated properly, and used aright, these periodic assemblages must be, indeed, powerful aids to the advancement of mankind in the arts of peace, and in the diffusion of peace and goodwill amongst men. Visited as mere shows, they must soon lose their significance, and degenerate into mere advertising bazaars, all the more contemptible from the failure of attaining the avowed objects of their institution, because a good design, perverted to evil, is more potent for evil than a design of avowedly lower aim. The purpose of my present address is, therefore, to induce you to examine carefully what you desire to seek in the Exhibition, and then very briefly to inquire into the most efficient way of seeing it.

But before entering upon our immediate subject, I would warn you of the danger of adopting any preconceived opinions as to the merits of the various articles exhibited, whether those opinions be derived from the published accounts in the public press, or from the medals or other rewards distributed by the juries. It is very rarely that the men who write the art-criticisms of our journals are instructed in the theory or the practice of the arts they write about; and the distribution of medals is so much affected by intrigue and favour, that in the eyes of thinking men the whole system of rewarding by medals is regarded as worse than a farce. I dwell a great deal upon this subject of the slight value of these medals, because, unfortunately, in the eyes of the public, they seem to bear a great weight. Now, I know that in half of the medals that will be distributed at this Exhibition, I should destroy the weight attached to them. They signify nothing, save that the man who receives them has very great friends at court. But you must think for yourselves; use your own eyes and your own judgments, and you may be sure of this, that by forming an independent and careful opinion of your own upon the merits of the things you understand, and by conscientiously striving to form true opinions on subjects you have, perhaps, not hitherto examined as closely as they deserve, you will derive infinitely more good than you can possibly do by accepting the dicta of any anonymous critic. You will, no doubt, find it difficult to form any valuable opinions on the merits of new materials, exhibited only in samples, and under such circumstances as to prevent your making experiments upon them; but this only renders it the more necessary for your refraining from hasty or prejudiced conclusions; for be it observed that, in this respect, the awarders of medals were not in a much more favourable position than you actually are in. My own opinions on the goods exhibited in the International are as open to objections, no doubt, as those of anonymous critics, and I also have not had any advantages in arriving at them. It is true that I knew most of the building materials exposed, before seeing them at Kensington; but I repeat, "*judge for yourselves*," and take my remarks simply as suggestions of "what and how to observe" in our joint and special pursuits.

It is not worth while to dwell upon the building itself; for it is so intensely ugly, so inappropriate for its purposes, so devoid of proportion, symmetry, design, and so objectionable as a piece of construction, that it is impossible for any one, acquainted with the laws of architecture in the slightest degree, to speak on the subject with any amount of patience or moderation. The only reasons which could possibly be urged in defence of a notice of the building are, because, in the first place, it has been avowedly erected as, or at least ought to have been, a type of the existing state of the building arts in England at the present day; and as a receptacle for the goods sent to one of the greatest of the world's fairs, to be visited literally by all the world; and secondly, because the very men who were capable of thus insulting the taste of our nation are, most unfortunately, the very men who dispose of the funds contributed by the nation to the encouragement of art. In other countries than our own, the money spent by the State for those purposes is entrusted to the control of men specially educated in the branches of art it may be desired to patronise; but it could only be in England that every architect would be passed over, in order to employ a military engineer to design a building meant specially to illustrate the state of architecture. No foreigner could possibly understand the why and the wherefore of this monstrous insult upon the architectural profession; and the consequence is, that the English architects, as a body, suffer in reputation from this unaccountable freak. The men who committed the egregious blunder of selecting the actual design for the International Exhibition are, of course, too grand for any expression of the popular disgust at its de-

fects to affect their self-satisfied composure; and all that the public can do is to protest, as loudly as it may, against the taste of its self-constituted art guides, and to forget the building whilst examining its contents. As to the opinion of foreigners on the subject, we must trust to their charity, notoriously so great when a chance is afforded them of turning us to ridicule. But why need we be thus always exposed to see our rulers "choose a dancing-master when they want a musician?"

In the interior of the Exhibition, the objects most likely to attract the attention of the practical builder, may be divided into three groups. 1st. The models of works executed; 2nd. The different raw materials used in construction; and 3rd. The machinery used in the conversion of those materials for the purposes of trade.

1st. As to the models, the most interesting are the great ones of the Cathedral of Milan, and of the new Exchange of Berlin, both of which are executed with surpassing skill, and which serve to illustrate some deep problems connected with the artistic expressions of national taste in modern Italy and Germany, to which I may some day call your especial attention. The models and drawings of some of the most celebrated engineering works executed at home or abroad, by Englishmen, are interesting, on account of the practical science they display, and of their bold construction; but they are sadly deficient in artistic feeling, and they serve to illustrate the danger of the modern separation of the professions of civil engineering and of architecture. The various bridges in which the piers are formed of parallel vertical tubes, and the roadway is formed by parallel horizontal girders, are especially objectionable, on the score of their artistic defects; and I am, for my own part, inclined to believe that the durability of these structures will not be very great. They are, however, cheap; and after the profligate waste of money on the preliminary stages of our public works—a condition, alas! which seems inevitable in our country—it is essential to economise on practical details. Hence the general substitution, here, of temporary wrought and cast-iron structures, for the more stable, but more costly stone ones; and the singular manner in which our engineers ignore the necessity for the display of taste in their works. The drawings and models of the Velletri, Tagus, Burraker, &c., bridges; of the viaducts on the Bombay and Baroda Railway; of the Crumlin and of the South Durham and Lancashire viaduct; of the Athlone and of the Boyne bridges, are all more or less liable to this criticism. The models of the light-houses, lately erected in such numbers on our shores, are less liable to the reproach of inelegance of form, and you will be interested with the very carefully executed models of the towers on the Smalls, Bishops Skerryvore, Hanois, and Fastnet Rocks, they are all designed mainly upon the principles originally suggested by Smeaton, with some modifications of details, which as a general rule, are conducive to the improvement of the artistic effects of their outlines.

But the most important, and perhaps, also, the most valuable series of models in the Exhibition, is the one exhibited by the Minister of Public Works of France, of the most important engineering works of that country; and I especially call your attention to it, because I know that English workmen do not give our neighbours due credit for their constructive abilities. The models of the gigantic break-water at Cherbourg; of the docks at Marseilles; of the graving docks at Toulon and Rochefort; of the great reservoir des Settons; of the lock gates at Havre and St. Nazaire; of the viaducts of Fribourg, of Chaumont, and of Nogent-sur-Marne; of the bridges of Kehl and Bourdeaux, and the turning bridge at Brest, &c., are all admirably executed, and worthy of careful study. Our neighbours have not failed to follow the fashion of the age, and they, too, have employed wrought iron parallel horizontal girders, over parallel vertical pillars, or tubes, as ugly as any of our bridges of the same description; but the French engineers have not given themselves over so exclusively as our engineers have done, to the use of wrought iron; and the viaducts of Chaumont and of Nogent-sur-Marne would alone suffice to raise the character of their modern public works. The model of the turning bridge at Brest is worthy of particular notice on account of the enormous magnitude of the work; the clear span between the faces of the abutments being not less than 347 ft. 8 in.; and the clear space between the underside of the bridge at the centre of the span, and high spring-tide line, being about 64 ft. The models illustrating the manner of sinking the tubular foundations of the bridge at Kehl are likewise of the greatest interest to the practical builder; and in some of the colonial and other foreign courts there are other models worthy of notice, but which I have neither time nor space to mention in detail.

2nd. The raw materials used in construction are far from being as well represented in the present International Exhibition, as they were either in the Exhibition of 1851 or in the Paris Exhibition of 1855; whilst the manner in which they are arranged in the building, or as described in the catalogues, is by no means such as to assist the spectator to justly estimate their value. Samples of building stones, bricks, woods, limes, &c., no more illustrate the commercial value of the formations from which they are derived, than a brick would illustrate the character of a house; yet in these Exhibitions

* Lecture by G. R. Burnell, Esq., C.E., at Provident Institution, Conduit-street, London.

we are obliged to be contented with the examination of such samples—until an opportunity should occur to investigate more thoroughly their average conditions. However, it must always be a matter of supreme importance to us practical builders to be made acquainted, even superficially, with all the new resources likely to be placed at our disposal; and we Englishmen are, as a rule, far too little disposed to try new things, to inspire any fear of our rashly adopting unknown materials on the strength of a few samples. Possibly a cursory examination of the samples collected in the International Exhibition may lead to a wider range of practice, to the employment of resources hitherto neglected. The value of these collections is, that they suggest thought and enquiry, rather than that they satisfy curiosity, or solve moot problems.

The various productions of the Ceramic art are of the most interesting description; and the higher branches are represented by Messrs. Minton, Copeland, Duke, the Worcester, Sèvres, Dresden, Copenhagen, Berlin, &c., factories, in a manner which must delight any true artist. For my own part, I confess that I do not like the imitation majolica, or the Palissy ware, Messrs. Minton are striving to introduce as a material for architectural decoration; and I hold that the great majolica fountain is a specimen of bad taste only equal to Gibson's painted statuary. But the mechanical execution of Minton's tazzas, candelabra, pedestals, brackets, &c., is admirable, and the designs are usually unexceptionable. Messrs. Minton, Mawe, and the Poole Pottery Company have some very beautiful specimens of encaustic tiles, and of Mosaic pavements; Messrs. Eastwood, Stutter (of Woolpit), Fayle (of Corfe Castle), Paine (of Farnham), Peake, &c., have samples of coloured and moulded bricks, of every possible description; the fire-clay wares from Wales, the Midland Counties, and the Northumbrian and Durham Coal-field, are singularly beautiful, and would undoubtedly increase the resources of the architect for the execution of polychromic decoration. The drain-pipes, and generally the stoneware works of Messrs. Doulton, Stiff, Cliff, &c., and the sanitary goods of Mr. Jennings, are worthy of your serious attention; and I may perhaps be allowed to recommend especially to your notice the large sewer blocks, and the hollow bricks, exhibited by Messrs. Doulton, whilst, as specimens of the potter's art, the large stills made by that house may particularly be mentioned. The coloured tiles and ridge crests exhibited by the various country makers are susceptible of being largely introduced in agricultural districts; whilst the ferro-metallic and the fire-clay paving tiles are equally applicable in practice in districts where good paving stone cannot be obtained. The most satisfactory consideration suggested by the Ceramic goods in the present Exhibition is, however, to be found in the marked improvement of taste displayed by our manufacturers; and though it is not possible to discover in their works the same refined and cultivated taste which pervades the productions of Wedgwood in his best day, yet our living manufacturers are manifestly striving to attain his excellence, and they are unquestionably in advance of the rest of Europe. The Sèvres ware itself cannot compare with the finer productions of Copeland, Minton, or of the Worcester Company.

(To be continued.)

ARMAGH CATHOLIC CATHEDRAL, which has formed subject for frequent notice in these columns, is (according to *Freeman*) rapidly progressing towards completion, and will rank among the grandest ecclesiastical structures in the kingdom. The style of architecture is the pointed Gothic. The entire roof is now covered in, the last of the transept towers being about to be capped, the clerestory and four great windows are filled with glass, while internally the eastern portion is in a very forward state. Internally, the edifice will (according to same authority) have a grand appearance, the most prominent object being the high altar of Sicilian marble, with carved stone reredos, tabernacle, piscina, brasswork, &c., in the purest ecclesiastical style. Besides, there will be marble altars, similarly furnished, in each aisle, and in Lady Chapel. This latter is immediately behind the high altar, screened off when the service is not performed therein. The throne and canopy will be of carved oak, which has also been selected for the stalls of the chapter, the doors, and the railing of the choir and chapels. The pulpit, in the nave, will be of carved stone and marble, which material will compose the font in the baptistery. Polished oak has been selected for the flooring of the choir, side chapels, and Lady Chapel. The passages of the nave, aisles, and transepts will be done with ornamental tiles, the other parts of the flooring with polished oak. If we add eighty benches in the nave, with solid carved ends; folding doors to the aisle porches, of solid oak polished; an organ gallery at the west end, with beams and massive carpentry, we can form an idea of the *ensemble* of this edifice, reared by voluntary contributions, to which foreign countries have contributed a portion, and amounting altogether, from home and foreign sources, to little short of £40,000. The contractor is Mr. Byrne, of Belfast. [Our contemporary should have noted that Mr. McCarthy is the architect.]

NEW JOURNAL—"THE ULSTER OBSERVER."

UNDER this title a new barque has been launched on the troubled sea of newspaper speculation, to supply a vacancy in the north of Ireland of a press organ to represent the masses of a certain persuasion. Our mission not being either sectarian or political, we must refrain from allusion to the principles in those regards, which may guide our contemporary, but glancing at the general character of its contents and style of production, we are free to express an opinion upon its intrinsic merit in the editorial department. Indeed to be so convinced it is only enough to know that the name of a talented and literary gentleman, a distinguished writer, recently the editor of a morning journal, is associated therewith, and we feel assured that however he may add to his laurel crown in his new sphere amongst the good people of the north, he is not likely to suffer a subtraction therefrom. We wish the *Ulster Observer* and its promoters every success.

LEGAL QUESTIONS.

Black v. Rev. Martin Laffan.—At Clonmel Assizes plaintiff sought for ejectment on title to recover a school-house and yard. Plaintiff purchased, in 1853, estate near Killenaule for £20,000, and obtained conveyance under Encumbered Estates' Court same year. Premises in question were built in 1846, by subscription, for a National School-house, but were not vested in Board. In 1861 defendant became P.P., and considered that both "possession" and "nonpayment of rent" entitled him to resist the ejectment; but would admit plaintiff's title, if he got lease at nominal rent. The judge directed verdict for plaintiff, with 6d. costs.

SLIGO ASSIZES—*Town and Harbour Commissioners of Sligo v. M. G. W. Railway.*—Traverse of award by Mr. Rynd, arbitrator between plaintiffs and defendants for £1,150, the plaintiffs claiming £2,449. Numerous witnesses, including surveyors, were examined. Verdict for plaintiffs for £2,370 odd, for land and sheds taken, and £300 for severance; total about £2,670.

Frith (County Surveyor) v. Weatherup.—This case came on summons before the Police Magistrates at Kingstown, but was again (for the *thirty-third time* perhaps) postponed, on application by defendant, as the counsel (Mr. Sidney) engaged was on circuit. Mr. Frith expressed his regret at being placed in the position of prosecutor, as he individually felt that the subject of the complaint—viz., the new house of the defendant at Blackrock was an acquisition and convenience to the public rather than otherwise. He consented to temporary adjournment, but would press for a new summons for the following Thursday, the 28th ult.

RUTTAN RAILWAY CAR DUSTER AND VENTILATOR.—For some days past simple announcements of "Ruttan Dusters and Ventilators" have appeared in the city papers and we (*Milwaukee Sentinel*) as well as the rest of mankind, were ignorant of their purport until the other day, when, on entering a railroad car at the Union Depot, our thirst for knowledge in regard to the "Ruttan Duster" was gratified. It is a new patent contrivance, and we believe the Michigan Central is the only road which now has it in use. On the top of the car there is a self-regulating bonnet or receiver into which the air is gathered and conveyed by means of tubes on each side of the car into a reservoir or bed of water about fifteen feet long, and six inches deep underneath the car, where all the dust, ashes and smoke are taken out; the air thus purified passes through flues on each side of the car and emitted through registers so adjusted that passengers can regulate the supply of fresh air according to the demand. After the air becomes impure, it naturally becomes heavier, sinks to the lower part of the car and is carried off through other flues underneath the seats. At no time while the train is in motion can the same air remain in the car longer than four minutes. By this system of ventilation, the opening of windows and the use of fans and linen overcoats during the hot and dusty weather are entirely dispensed with. The car is, in fact, hermetically sealed while in motion, as there is only an aperture of about 8 x 6 inches in the windows which can be opened, and these are of no use while in motion, as the pressure of air in the car is greater than that outside. Passengers will find the cars fitted up with the "Ruttan Duster and Ventilator" entirely free from dust, and to substantiate the fact, we have only to say that on the velvet cushion of a car which had just arrived over a dusty road from Detroit, we were unable to find any trace of dust. Altogether, this is the most perfect ventilator and dust exterminator we have yet seen or heard of, and the Michigan Central R. R. Co. deserves the patronage and thanks of the travelling public for their indefatigable exertions to promote the comfort of their passengers. The road is now entirely equipped with this kind of cars for day trains. On the night trains, the cars are provided with raised ventilated tops. All of the cars used by the Michigan Central have long six-wheel trucks, and are of superior finish throughout.

Notes of New Works.

A new dwelling-house and offices are to be erected at the Deer Park, Darley-hill, county Meath. Mr. James Boulger, architect.

The new Roman Catholic Cathedral of Clogher will (according to the *Freeman*) be a splendid edifice. The foundations are all complete, and the massive arches below the surface show that they are intended to bear an enormous weight. The site is one of the finest that could be selected or desired. From every side a broad, expanding country can be seen, embracing the counties of Fermanagh, Tyrone, Cavan, Derry, Armagh, Down, Louth, and Monaghan, as the site rests on one of those undulating hills of which the whole county of Monaghan is composed.

The churches of Drumbo and Kilkeel, county Down, and of Charlemont, county Armagh, are to be enlarged according to plans by the architects to the Ecclesiastical Commissioners. Extensive works are also to be executed at the churches of Glunkeel, county Tipperary, of Kildimo, county Limerick, and Altedesert, county Tyrone, under same direction.

The skeleton of a new Dominican Church is to be erected in the town of Dundalk, and tenders are invited by the architect, Mr. John Murray.

A fine marble altar is in course of preparation at Galway, for the new parish church of Leitrim, the late Mrs. Egan of Limehill having bequeathed the amount to be expended thereon.

A correspondent draws our attention to the new Roman Catholic church of Clogharinka, county Kildare, which, he says—"taking the wetness of the season into account—is in a forward state, and when finished will be one of the most tasteful structures in the locality. The design is in the Gothic style, by Mr. J. S. Butler, architect. The masonry consists of squared and punched black stone from quarries on the spot, and the dressings are of finely-drafted and punched limestone from the Carrick quarries, which our informant adds has been largely used in the ornamental and tracery works at the new building of St. Patrick's College, Maynooth. Mr. Keegan of Killucan is the builder, and Mr. Peter Kilian the clerk of works."

Amongst the improvements in progress in Wexford, we (*Independent*) must bear willing testimony to the splendid manner in which the approaches to the new bridge on the ferry-bank side of the Slaney have been carried out by Mr. McDonnell. They are a credit to him as a contractor, and will be duly appreciated by the county.

The new Roman Catholic Church of Tramore was formally consecrated on Sunday the 13th inst.

The clergymen of the Church of St. Teresa, Clarendon-street, announce that they have succeeded in obtaining certain premises adjoining their church, which heretofore were anything but an advantage to it. The present church is entirely too small. The excessive pressure, and the many other inconveniences arising from want of sufficient space, render it necessary to enlarge it considerably, as can now be done by adding an extensive transept towards Grafton-street, adjoining which there will be opened a new and respectable entrance, so long and so anxiously desired. The proposed addition will consist of a transept and vestry, with a campanile, side altars, and a chapel of the Immaculate Conception. The proposed improvements have been fully considered with regard to convenience and economy, and have been arranged by an experienced architect.

A new National Bank is being erected at Mountmellick, Queen's County. Mr. W. F. Caldbeck, architect; Mr. J. Scanlan, Lis-towel, builder. Cost, £2,100.

New schools, with masters' residences, &c., in the Gothic style, are being built at Croom, county Limerick, for H. Lyons, Esq. Mr. W. Fogarty (Limerick), architect; Mr. P. Scaulan, Bruff, builder. Cost, about £1,200.

A coast-guard station for a chief officer and six men is to be constructed at Carrickfergus by the Board of Public Works. Plans at 22, Queen-street, Belfast, up to 16th inst., on which day tenders must be in.

A new fever hospital is to be erected at the workhouse grounds of the Strokestown Union.

Mr. G. G. Scott's new pulpit, which has been some time in hand, has been erected in Westminster Abbey, at the north side of the nave. It is described by the *Athenaeum* as octagonal, of Mansfield stone, and marbles of rich colours inlaid. Six figures, Saints Peter and Paul, with the Evangelists, fill the angles. The central space thus divided contains a medallion of Our Saviour crowned with thorns, in white marble. The minor panels are filled with inlaid circular ornaments, in the coloured marbles. The whole stands upon coloured marble shafts, and is ascended by stairs, whose balustrades are of the same material. The effect of the whole is exceedingly agreeable. The sculpture was executed by Mr. Munroe and Mr. Farmer.

The decoration of the church of St. Paul, Arran-quay, has been entrusted to Messrs. Barff & Co., the eminent artists.

The Belfast Banking Company have entered into a contract for extensive works in connection with their present buildings at Newry. They consist of a new cash office, 30 feet by 27; manager's room, strong rooms, lavatory, &c. The new building will be approached through a vestibule, formed on site of present office and manager's room, which will have walls removed, and upper floors, &c., carried on beams, supported on Corinthian columns, with the entablatures carried round the other walls, which are to be bracketted out for same. Large folding doors, with glazed (plate glass) pannels, will lead from present hall to vestibule, and thence to new building. The ceiling of cash office will be coned, giving 8 feet radius, springing off an enriched medallion cornice, and enriched soffit round lantern, which will have Corinthian pilasters at angles, and spaces filled in with pannels, formed in ground glass, with the light over ribbed and pannelled to match. The walls will have a moulded continued pedestal and pediments, with carved consoles and enriched architraves to doors. Ventilation is provided for by valves communicating with air palings in external walls, and by louvres over lantern. The floors will be covered with encaustic tiles, and the fittings in mahogany. Mr. W. J. Barre, of Belfast and Newry, is the architect; Mr. Bernard Maginnis the contractor.

The house No. 28, Grafton-street, rebuilt after a memorable fire about five years ago by the then occupier, Mr. Flood, vintner, has been taken down, and is being re-erected by Mr. Graham Lemon, who has recently acquired the property, together with some premises at the rear, which will be included, so as to form one large establishment. While we admire the enterprise of Mr. Lemon, we certainly must dissent from his architectural "efforts"—which are seldom attended with success, when the work of an amateur.

Review.

"British Industry Exemplified in the Departments of Coal Mining and Iron Smelting." By Henrie O'Hara, C.E. Dublin: Wm. Magee.

This pamphlet is the reprint of a lecture delivered some time since at the Mechanics' Institute, and treats in a practical manner, amongst other matters, of the operations of mining and smelting (illustrated by diagrams), of iron architecture as applied to naval or civil purposes, of the proper ventilation of mines, of coal statistics, &c., &c. The author's immediate object is to show that "a true indication of the progress and prosperity of a nation may be obtained by observing the extent to which iron is applied to the mechanical arts." He treats his subject with ability.

Varied Items.

The demolition of Hungerford Market, London, continues still, to make way for the Charing Cross Railway Terminus. The colonnade of shops, and the two well-known public-houses at which the omnibuses stopped, were brought to the hammer last week.

The "Indian Empire," of Transatlantic celebrity, via Galway, has been destroyed by fire off Deptford. She was insured for £10,000.

The Albert Mausoleum at Windsor is being executed from designs and under the superintendence of Mr. Humbert, Architect. It consists of an octagonal central cell—with transepts branching towards the cardinal points—containing the sarcophagus for the remains of the late Prince (of whom a reclining statue, by Baron Marochetti is in preparation) and surmounted by a *gilt cross*. The entire of the exterior is being decorated with Aberdeen and Guernsey granite, with red Mansfield and other stones; the interior in different coloured marbles and stones. It is said that the design reminds one of the Pisa Campanile; but we hope it is not "*leaning*." An appropriate inscription denotes the object of the structure—viz., "In Pious Remembrance of Queen Victoria's Great and Good Husband." Mr. George Dines, Builder; Mr. Thomas, Clerk of Works.

The explorations of the Palatine Mount, in Rome, are being continued with success. A statue of great beauty and of high value has just been found, which is said to be of the finest period of Greek art.

The rich and beautiful service of silver plate which is about being presented to Mr. Webb, the enterprising lessee of the Queen's Theatre, is now on view at the manufacturers, Waterhouse and Company, Dame-street.

The Athlone Catholic Young Men's Society have been giving amateur performances for charitable purposes, and have succeeded in presenting contributions over and above the expenses.

The post of Librarian to the Royal Institute of British Architects is about becoming vacant, and candidates are invited to send in their testimonials. The salary is £150 per annum.

At the Queen's Royal Theatre in this city, Miss Maria Simpson, of the Strand Theatre, London, and Mr. E. Sheridan, a renowned burlesque comedian, have been performing to crowded audiences. The former enacted the part of "The Wonderful Scamp," or Alladdin in the Extravaganza of that title; and the latter, "The Widow Twanky;" Mr. H. Webb (the enterprising lessee) personating Albanazar.

The Emperor of the French has given an order to the venerable M. Ingres, the great painter and newly-created senator, for a fancy portrait of Julius Cæsar to be engraved and placed at the head of the historical work which his Majesty has been so long writing, and is now about to publish.

The Marquise de la Place, widow of the illustrious author of the "Mecanique Celeste," has just died, at the great age of 94.

The late Primate Beresford, who died very recently, caused the Campanile in Trinity College—Mr. Lanyon, architect; Mr. Kingsmill, builder—to be erected at his own expense.

A "Rolling Stock Company of Ireland (Limited)" is proposed to be established, with a capital of £200,000, in 20,000 shares of £10 each. Amongst the Directors are Mr. J. Digges La Touche, Director of M. G. W. Railway, Mr. M'Birney, of Enniskillen and Bundoran Railway, Mr. V. O'B. O'Connor, Chairman of Cork and Bandon, and Director of G. S. & W. Railways, and Mr. Stirling, of the M. G. W. Railway, and the Dublin and Wicklow. Mr. Richard Martin (John Martin and Sons) and Mr. Stephens (Courtney and Stephens) are Auditors for Dublin.

The Annual Exhibition of the Royal Hibernian Academy, now open, will shortly close. Admission by gaslight, 3d. Will any one fail to see it?

The *Patrie* says, that on July the 4th the restoration of the dome of the Church of the Holy Sepulchre was begun, at the joint expense of the French, Russian, and Turkish Governments. The works were under the direction of an Armenian architect, appointed by the Porte.

The Eighth Annual Meeting of the London Model Lodging-houses Association was held at Guildhall on the 17th ult. By the Reports presented, it appeared that "the mortality in the buildings continued to be very small, and the conduct of the inmates on the whole satisfactory." The Governors add, that "their endeavours to promote the social welfare of the labouring classes of the city have not been wholly unattended with success; for the constant demands of their houses evidences an anxiety on the part of the artizan class to avail themselves of the conveniences and comfort they afford over the ordinary tenements of the locality."

The Annual Congress of the Archæological Institute of Great Britain commenced at Worcester on the 22nd inst. There were three sections—viz., History (Lord Neaves, President); Architecture (Sir Stephen R. S. Glynn, Bart., F.S.A.); Early and Mediæval Antiquities (Dr. Guest, of Caln's College, Cambridge). The official reception took place at Guildhall, at two o'clock. Lord Talbot de Malahide, late President, vacated the chair in favour of Lord Littleton. The Deputy Town Clerk of Worcester read an address from the Mayor and Corporation. On Wednesday morning 200 ladies and gentlemen breakfasted with the Mayor at Guildhall. On Thursday the Members visited Evesham and Campden, with *Conversazione* in the evening at the Museum. On Friday Professor Willis delivered a Lecture on the "History of the Cathedral." On Saturday meetings of Sections took place, and an excursion to Malvern, &c. There was a concluding meeting this week.

The Bodleian Library possesses a collection of drawings of French monuments, for the most part now destroyed, which formerly belonged to the Bibliothèque du Roi, but were abstracted from that place by one of the curators, between the years 1781 and 1784.

M. Horace Vernet has just arrived in Paris from his chateau at the Isles of Hyeres. M. Vernet was born in the year 1789, and is consequently now in his seventy-third year, "but is still (says *Galignani*) as active and erect as a young man."

A curious leaden cylinder has been found by some workmen at Chester, supposed to be of Roman origin. It contained human bones, burnt; was about 18in. high, and 7½ in. in diameter; it was half an inch thick at the bottom; the sides were welded together without solder, and the top closed by forcing in the sides.

The duty on fire insurance in the United Kingdom for 1861 was £1,611,077, being £53,000 in excess of the previous year. London offices paid £986,210, country offices £489,630, Scotch offices £122,105, and Irish offices £13,732.

A letter of the poet Spenser, of several pages long, is reported to have been discovered in the Record Office. What gives peculiar interest to the discovery is the fact that, with the exception of a signature to a deed, preserved in the British Museum, no other autograph of Spenser's is known to be in existence.

The Royal Institute of British Architects has named the following gentlemen to act as a Committee on the Conservation of Ancient Monuments and Remains:—Messrs. Tite, G. G. Scott, M. D. Wyatt, A. Ashpitel, J. Bell, W. Burges, E. Christian, J. Clarke, B. Ferrey, T. H. Lewis, C. C. Nelson, J. L. Pearson, F. C. Penrose, A. Salvin, W. Slater, and G. E. Street.

Messrs. James Forrest and Sons, of this city, have been awarded "the Prize Medal for Irish laces of unrivalled excellence," displayed at the International Exhibition.

The leading theatres are deriving a large revenue from the crowded state of the metropolis, and at a much earlier period of the season than during the former Great International Exhibition. The doors are besieged from an early hour. The Director of the Royal Italian Opera, Covent Garden, should the present success continue, will make what many good people would consider a large fortune before the close of the Italian season in August—little less, so the rumour goes, than £40,000.

Miscellaneous.

THE NIGHT REFUGE.—Weekly return of the number of homeless women, girls, and children of good character, who received night shelter and partial support in St. Joseph's Night Refuge, Brickfield-lane, Cork-street, Dublin, for the week ending the 10th of July, 1862:—Children, 109; servants, 320; plain workers, 53; laundresses, 54; factory girls, 22; bootbinders, 19; bonnetmakers, 7; dressmakers, 8; mattress-makers, 5. Total, 597.

THE NEW PULPIT IN WESTMINSTER ABBEY.—We are requested to state that the beautiful head of the Saviour, executed in white marble, and placed in the centre of the new pulpit in Westminster Abbey, is the work of Mr. Alexander Munro, the well-known sculptor. We believe that the head is the gift of Lady James; Sir Walter James, Mr. A. Beresford Hope, and Mr. Gladstone being the chief subscribers to the cost of the pulpit.

HEALTH OF LONDON.—It appears from the weekly return issued by the Registrar-General, that the deaths in London in the week that ended last Saturday, were 1,159. The mortality was rather higher than it had been since May. The average number of deaths for corresponding weeks of 1852-61 (corrected) is 1,134; and the returns of last week exhibit a small excess above the average rate of mortality. The births in the week exceeded the deaths by 556. Measles was fatal in 62 cases. Six of those occurred in the west sub-district of Islington, 10 in Haggerstone, 4 in Spitalfields. Of 52 deaths from scarlatina registered in the week, there were 8 in the Kennington town sub-district. Typhus was fatal in 61 cases, of which 11 were returned by the London Fever Hospital. A girl, aged 9 months, died at 44, Hereford-street, Marylebone, of "choleraic diarrhoea;" and a boy, aged 2 years, at 25, George-street, Hammersmith, of "cholera (8 days), cerebral congestion." A woman, unknown, aged 25 years, died in Westminster Hospital of "poisoning from filth and neglect; starvation." Last week the birth of 862 boys and 853 girls, in all 1,715 children, were registered in London. In the ten corresponding weeks of 1852-61 the average number (corrected) was 1,684.

The Lord Lieutenant is to visit Limerick during the show of the Royal Agricultural Society the first week in August, and will be the guest of Lord Inchiquin for the week at Dromoland.

THAMES EMBANKMENT.—This measure, now settled, provides that the embankment shall commence at the northern side of the Middlesex end of Westminster bridge, and terminate at Blackfriars bridge, thus setting aside the opposition of the Duke of Buccleugh, and of the Crown lessees, and furnishing an uninterrupted public route between the east and west of the metropolis. The improvements and works clauses, as finally settled, provide that the embankment shall be 100 feet wide up to the eastern boundary of the Inner Temple, and not less than 70 feet wide thence to Chatham Place, with all requisite approaches. The approach road leading out of the embankment is to be of an uniform width of not less than 40 feet, at a gradient of 1 in 80, and communicating by means of approaches with Surrey, Norfolk, and Arundel Streets. The new street, to come out of the embankment at the east side of the Middlesex end of Hungerford Bridge, passing through the parishes of St. Martin's, St. Clement's, and the Savoy, will terminate in Wellington Street, Waterloo Bridge, opposite the north wing of the western front of Somerset house, with several shorter communications out of it, terminating in Villiers Street, Buckingham and Cecil Streets. Another new street, commencing by a junction with the last communication will form a junction with it at George Street, Adelphi, and terminate in Whitehall Place at its eastern end; and the completing feature of the undertaking will be another new street running out of the embankment or roadway near Whitehall Stairs, passing through Whitehall Yard, and terminating in Whitehall, opposite the Horse Guards. This is the substance of a design submitted by Mr. Shields, C.E., and approved.

CORK AND LIMERICK DIRECT RAILWAY.—On Tuesday week last, some of the gentlemen connected with this line, including Mr. Pike, the Chairman, went over it on a trial trip. They were accompanied by Mr. Ilberry, traffic manager, and Mr. Miller, Engineer of the Great Southern and Western Railway. The result appears to have been very satisfactory.

THE SINGING BULLFINCH AT THE INTERNATIONAL EXHIBITION.—The crowds around this marvellous bird are as great as ever, and Mr. Linton, his exhibitor, has hit upon a very happy means of turning to profitable account the anxiety of the people to hear his performances. A notice is posted up at the stall that he will sing all the day through, at any hour when an audience can be collected which will first subscribe 5s.—as a contribution to the fund now being raised for the relief of the distress in the cotton districts. The idea has been very successful so far, and the bullfinch has already earned a sum for the distressed operatives, which will be forwarded to the Lord Mayor and acknowledged in the usual manner.

NORTH DUBLIN UNION.—State of the House as reported at meeting of Board on 23rd. ult.:—Paupers in the House as per last return, 1161; admitted during the week, 75; Born, 1; Discharged, 78; Died, 8; Remaining Saturday, the 19th ult., 1,751.

THE PERIPATETIC POET.—Among literary men Wordsworth probably stood pre-eminent in respect to his indulgence in out-of-door exercise. De Quincey calculated that the poet had walked, in the course of his long life, more than two hundred thousand miles, or nearly the distance between the earth and the moon. 'Thirty miles a day was no uncommon stretch for him in the prime of his physical powers, and some of his best poems were composed while he was thus, in parliamentary phrase, "on his legs."

THE "TEMPLE BAR" ON DUBLIN NOSES.—Dublin presents us with a perfect gamut of noses, from the most diminutive, small, potato pug to the symmetrical Grecian and haughty Roman. The pug in rags drives along in a picturesque donkey-cart; the elegant Grecian, in its statuesque beauty, glides past on the side-walk; the Roman reclines in a carriage, whose panels exhibit the insignia of ancient rank and dominion. There are Irish faces of children and of savages, simply good or fearfully bad, and there are also those of the highest culture and refinement. Beauty, genius, valour, and nobility have their home in the sad sister island, but all these find their opposites, often in strange proximity.

THE SUEZ CANAL.—According to accounts received from Mr. D. A. Lange, the Suez Canal works continue to be pushed with vigour, and it is expected that the works will soon be sufficiently advanced to allow the waters of the Mediterranean to flow into the banks of Timsah. The inland port of Tine Timsah is to serve as a coaling and watering station for vessels passing through the canal.

NEW CATHEDRAL, CORK.—The time for sending in plans for the rebuilding is extended to the 1st of October.

THE ALBERT MEMORIAL.—A BRIGHT IDEA!—"An *intending subscriber*" suggests a site which he *alleges* "would much improve a part of the city greatly neglected, although in the centre of one of its busiest thoroughfares." He says—"take down the ugly prison-like railing in front of the City hall, and place a handsome classic testimonial *in its place*, and not one of the monstrosities so prevalent of late. Open the space in front by taking down two or three houses at each side of Parliament-street, and form a *pleasing crescent* and improve the ascent to Castle-street.

HALLS OF MEETING.—It is a most gratifying fact to find sufficient independence of spirit among the bodymen, of whatever trade it may be, to secure a spacious and respectable hall of meeting, with apartments suited to their various requirements. In this regard the Gloucester-street carpenters, the Cuffe and Halston streets bricklayers, the painters in South King-street, the weavers in the Coombe, the plasterers in Aungier-street, and, though last not least, the bakers in Upper Bridge-street, are singularly fortunate. Our friends, the carpenters in Temple-bar, the stonecutters in Elefant-lane, the slaters &c., in Parliament-street, and various others, will, we are sure, soon follow their example, and remove the brand on their social position, indelibly fixed as long as they assemble in or over a *public house*, where drink (to use Lord Brougham's phrase) may be received down their throats, like a thief to "steal their brains out." Men of these bodies quickly arouse from your lethargy; teach yourselves to feel that, as men pursuing honest labour, you are *as good* as your fellow-tradesmen, and have as good a right as they to be housed comfortably. We shall not cease our agitation till you have each a hall of your own.—*The Operative.*

BIRTHS AND DEATHS REGISTRATION BILL.—On the order of the day for proceeding with this bill, Sir Robert Peel said:—Sir, in consequence of the lateness of the session, and as great doubt has arisen in Ireland as to who should be the registrars under this bill—the constabulary or the medical officers—and, inasmuch as the hon. and learned gentleman the member for Belfast has withdrawn his bill for the amendment of the law of Marriage, I think it but fair to Irish members that I should at once state that it is not the intention of the government to proceed further with the registration bill in the present session. The bill was then withdrawn.

OVERCROWDING OMNIBUSES.—The Society for the Prevention of Cruelty to Animals have given public notice of their intention to prosecute, under the act Parliament, all omnibus proprietors who permit the overcrowding of their vehicles, to the injury of their horses and the danger of the public.

ENGINEERING PRIZES.—The Council of the Institution of Civil Engineers have awarded the following premiums for papers read during the session 1861-62:—A Telford Medal, the Manby Premium in Books, and a Stephenson Prize of 25 guineas, to C. A. Hartley, for his 'Description of the Delta, and of the Works recently executed at the Sulina Mouth of the Danube.'—A Telford Medal, and a Miller Prize of 15 guineas, to J. H. Muller (of the Hague), for his paper 'On Reclaiming Land from Seas and Estuaries.'—A Telford Medal and a Miller Prize of 15 guineas, to J. Paton, for his paper 'On the Sea Dykes of Schleswig and Holstein, and on Reclaiming Land from the Sea.'—A Telford Medal, to J. Abernethy, for his 'Description and Illustrations of the Works at the Ports of Swansea, Silloth, and Blyth.'—A Telford Medal, to J. B. Denton, for his paper 'On the Discharge from Underdrainage, and its effect on the Arterial Channels and Outfalls of the Country.'—A Watt Medal, to J. D'Aguiar Samuda, for his paper, 'On the Form and Materials for Iron-plated Ships, and the Points requiring attention in their Construction.'—A Council Premium of Books to J. Brunlees, for his paper 'On Railway Accidents—their Causes and Means of Prevention.'—A Council Premium of Books, to Capt. D. Galton, R.E., for his paper 'On Railway Accidents, showing the bearing which existing legislation has upon them.'—A Council Premium of Books, to H. C. Forde, for his paper 'On the Malta and Alexandria Submarine Cable.'—A Council Premium of Books, to C. W. Siemens, for his paper 'On the Electrical Tests employed during the construction of the Malta and Alexandria Telegraph, and on insulating and protecting Submarine Cables.'—A Council Premium of Books, to J. A. Longridge, for his paper 'On the Hooghly and the Mutla.'—A Council Premium of Books, to J. Oldham, for his paper 'On Reclaiming Land from Seas and Estuaries.'

MONAGHAN PARISH CHURCH.—The Committee for the erection of a Testimonial Stained-glass Window to the memory of the late Lord Rossmore, have selected Messrs. Barff and Co., of Dublin, as the artists to whom they have entrusted the work. We are glad that Irishmen are giving encouragement to the advancement of art in their own country. We trust that the example of the gentlemen of the Rossmore Testimonial Committee will be generally imitated.

CONCERTS AT THE MECHANICS' INSTITUTION.—The Directors of this now thriving establishment have been, with much commendable enterprise, giving a series of entertaining concerts in their spacious theatre, at which some local artistes, favourably regarded, assisted. We are always glad to see such a rational and elevating character of recreation provided for our mechanics and their families.

GOLD MINES IN NOVA SCOTIA.—Most of the companies now at work are taking out large quantities of quartz, which, although the crushing mills are very poorly adapted to the work, yields a very large return—some 300 dols. to 400 dols. the ton. One company took out last week £1,200 worth of gold. Another took £175 for one blast; indeed it far exceeds the expectations of even the most sanguine persons. Shares in the companies now working are very high. The Chebucto Company shares, that cost nine months since five dollars each, are now selling for forty dollars, or eight-hundred per cent. advance. One claim that cost last year £25, and had been found to contain rich quartz, was sold a few days since for £500. A gentleman of Wolfville owned a seventh of a claim at Laidlaw, with which another gentleman is concerned, and which cost last year £50 or £7 2s. 10d. for his share. He sold out some two weeks since for £400—rather a nice operation. Many others might be quoted if necessary. Although we have not commenced working our claims, we know they are valuable; as 100 dols. worth of gold has been taken within an hour from the adjoining claim, and a vein of quartz runs through those that have been tested, valued at 300 dols. the ton.

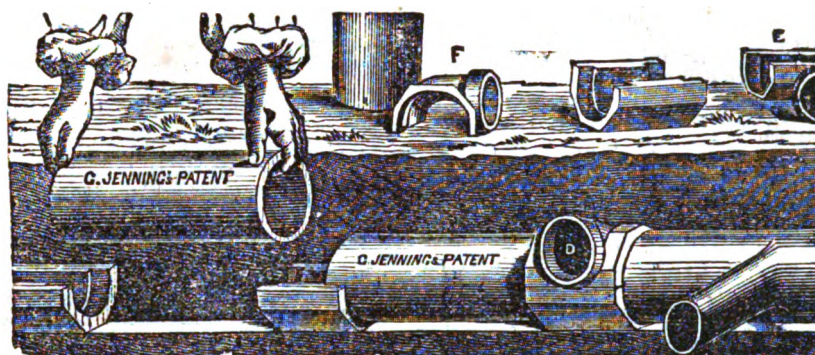
METROPOLITAN CENTRAL RAILWAY.—We (*Saunders*) understand the promoters of the Great Central Railway at Carlisle-bridge, to connect all the Dublin railways in one grand terminus, are making quiet but sure progress in ascertaining the value of the different house properties they will have to purchase, preparatory to going to Parliament early next session.

THE DUBLIN BUILDER AND "IRISH STATISTICS."

11, Downing-street, Whitehall.

The Chancellor of the Exchequer begs to thank the Editor of the "DUBLIN BUILDER" for the interesting articles on Irish Statistics which he has received.

July 31st, 1862.



GLAZED SEWER PIPES, &c. FERGUSLIE FIRE CLAY WORKS PAISLEY.

The Subscriber, to meet the greatly increasing demands in Dublin and neighbourhood for the very superior class of Fire Clay Goods manufactured by him, has opened a commodious depot at

No. 56, NORTH-WALL, where he will always have an extensive stock of

GLAZED SEWER PIPES,

According to Jennings' Patent.

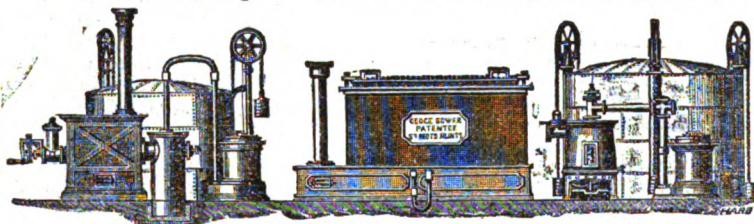
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Inspection invited.

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National Gas Apparatus,
Patented, 1867.

Combined Gas Purifying
Apparatus, to enlarged scale,
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Patented, 1852.

Vertical Retort Gas Apparatus.
Patented, 1860.
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20 & up to } With the Retort and purifying portion portable, easily fixed and managed, and suitable for
80 LIGHTS } Private Residences.

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500 LIGHTS } struction—simple, and very suitable for Factories, large Mansions, and for Export.

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Gas Works of all sizes, up to 2,000 lights, together with mains, syphons, bends and tees, lamp columns and brackets, generally kept in stock, and for shipment are delivered at any port in Great Britain.

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References to a selected list of 100 out of a great number of Gas Works of all dimensions, erected by the Advertiser in England and various parts of Europe.

The Combined Purifier, in conjunction with the National or the Vertical Retort Apparatus, has obtained a great number of Prizes at various Exhibitions throughout Great Britain.

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At Mr. WARRINGTON'S West Central Establishment, 43, MARK-STREET, Bloomsbury-square, London, opposite Mudie's Library, where may be had Mr. Warrington's "History of Stained Glass."

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VOL. IV.—No. 64.

ON STEAM AND THE STEAM ENGINE.*

STEAM is pure fresh water in an aeriform state, through the absorption of caloric, or the matter of heat.

All waters impregnated with foreign substances are deleterious to the economic production of steam. Fresh water of average quality boils under atmospheric pressure at 212 degs. Fahrenheit, and one cubic inch produces about one cubic foot of steam equal in pressure to that of the atmosphere, but only considered of any effective benefit as a motive agent in that of the condensing engine, in which a more or less vacuum is obtained through the medium of the condenser and air pump.

Steam is distinguished in practice by the terms "low pressure" and "high pressure," in accordance with density, and because in a condensing engine, if a pure vacuum could be obtained, the effective atmospheric pressure, plus 15 of indicated pressure, would equal 30 lbs. per square inch of useful productive effect; hence the common appellation, "low-pressure steam." Again, the atmospheric pressure being equal to 15 lbs., in round numbers, per square inch, the steam in a non-condensing engine has that resistance to overcome; therefore, 30 lbs. of indicated pressure in non-condensing engines are only equal to 15 of indicated pressure in those of the condensing principle; for which reason steam of that density and above is designated steam of high pressure, or high-pressure steam.

Steam is frequently separated by another vessel from its water of formation, and subjected to a greater degree of heat, whereby the watery particles of which it is composed are diminished in bulk, but augmented in quantity and elastic force, through excess of caloric, and commonly termed superheated steam.

Steam to which heat is applied after being separated from its water of formation, is subject to the same laws of expansion as atmospheric air and gases generally, the increase in volume from unity being 1.375 for 180 degrees of elevated temperature; hence the rule—To the degrees of temperature before and after expansion, add the constant number 459, divide the greater sum by the lesser, multiply the quotient by the volume at the lower temperature, and the product is the expanded volume in equal terms of unity.

Steam possesses the property of expansive force, and in the following ratio—viz., if expanded to double its volume of formation, its retaining force equals one-half—if to three times its volume, one-third—if to four times its volume, one-fourth, &c., in an inverse ratio with the degree of expansion; hence the beneficial properties of high-pressure steam in preference to low pressure in the economical working of a steam engine, if cut off early in the stroke, and continued to the end by expansive force. Thus, let dense steam be stopped off from the cylinder of an engine at one-half the stroke, the mean elastic force of the steam throughout the whole stroke equal 1.7—that is, the dense steam equal 1, and the same steam expanded, terminate at half the original density, but by its increase of volume and diminution of elastic force, seven-tenths of the original elastic force is economised by the property of its expansion; and similar values are obtained in similar ratios when stopped off at any other point of the stroke.

Salt or sea water does not boil at an equal temperature with that of fresh water, consequently it is an inferior medium of caloric reception for the production of steam, and as the water becomes evaporated, so is saturation approximated and a higher temperature required to produce steam of equal density to that from fresh water.

The steam engine is rendered an available source of motive power through the following innate properties of steam—viz., elastic force, expansive force, and ready submission to the destruction of its aeriform state through the abstraction of its heat by cold water, thus constituting the principles of the condensing engine.

In engines on the non-condensing principle, condensation of the steam is evaded by excess of density, and after having performed its duty in the cylinder, is allowed to escape into the

atmosphere; hence the atmospheric pressure on the boiler is a counterpoise to effluent steam from the cylinder, minus its resistance by velocity against the pressure of the atmosphere.

Steam, as regards its various theoretical vicissitudes of beneficial effect in the steam engine, has long been investigated and experimented upon by eminent engineers, and the results of their researches and experiments have been given as data by which to construct upon, both relative to economy and design of modification, suitable to the numerous useful purposes to which the steam engine is applied.

In the constructing and working of stationary engines, it is necessary to be guided by some restricted velocity for the piston in a given time (*say feet per minute*), whereby to effect a maximum of power from a given pressure of steam necessary to the required performance of machinery, &c., at a steady uniform rate of motion; but engines for marine purposes, or for locomotive purposes, have no restricted velocities to contend with, otherwise than economising of fuel, and unavoidable want of steam occasionally.

Several empirical rules have been, and still are, in use, whereby to determine the most advantageous velocities for the pistons of steam engines, through which to obtain a maximum of useful effect, but have been found contradictory.

The useful effect of steam engines, independent of locomotives, are estimated in terms of horses' power, one horse's power being an equivalent to 33,000 lbs. avoirdupois, raised through one foot per minute; but the density of the steam taken into calculation causes a distinction of terms of expressed effect, the one being taken at a constant uniform pressure of 7 lbs. per square inch, which constitute nominal horses' power; the other is the mean effective pressure of steam taken by an indicator, and called actual horses' power. The following are the general relative rules:—

RULE 1.—Divide the product of 33,000 multiplied by the required number of horses' power, by the product of the velocity in feet per minute, multiplied by 7 lbs. per square inch, and the quotient is the piston's area in square inches.

RULE 2.—Multiply the piston's area in square inches by its velocity in feet per minute and by 7 lbs.; divide the product by 33,000, and the quotient is the expressed effect in nominal horses' power.

THE CRAMPTON TESTIMONIAL.

THE Crampton Fountain in College-street, is being opened this day (Friday), at a quarter before twelve o'clock. Lord Howth and the general committee attend and hand over the fountain to the Lord Mayor and Corporation. Mr. Kirk is the sculptor.

We have before now given descriptive particulars of this work, but in completion add the inscription by the Lord Lieutenant, and placed in a shield form of black marble tablet in the side of the pedestal facing Great Brunswick-street, viz.:—

This fountain has been placed here,
A type of health and usefulness,
By the friends and admirers
OF SIR PHILIP CRAMPTON, Bart.,
Surgeon-General to Her Majesty's Forces.
It but feebly represents
The sparkle of his genial fancy,
The depth of his calm sagacity,
The clearness of his spotless honour,
The flow of his boundless benevolence.

Now, with all respect for the memory of the dead, with all appreciation of his skill as a surgeon, and with all regard for the likelihood of his private worth—as chiefly known to those honoured with his acquaintance—we must say that, if we were to raise monuments to each of our deceased citizens, who, as accomplished professionals, and worthy members of society, have as much (and more) legitimate claim as the late Sir Philip Crampton for public consideration, we should have every crossing in the city, not to say every prominent position, adorned with "a testimonial." Why do such honour to ordinary individuals, whose merits are confined to a comparatively limited circle, and forget that due to those in whose memory the nation glories? So admirable a site might have been (to our minds) secured to much greater advantage in perpetuating the memory of some other, the "sparkle" of whose "genial fancy," "the depth of whose calm sagacity," "the clearness" of whose "spotless honour," and "the flow" of whose "boundless benevolence" had been much more extensively known and felt. It has been a matter of remark that the Lord Lieutenant did not preside at the inauguration, but we think that the duty more properly devolved on our chief magistrate, and the result justifies us. As a composition there is much originality in the design. It seems incomplete however, the drinking cups being wanting, and the water dribbling through the dolphins' mouths into the shells to the manifest damage of the structure, whereas a small tube in each would form a proper jet. If not attended to in time, the old proverb that "frequent droppings wear away the hardest stones" may be fulfilled. As a "fountain," the structure is a boon.

* Templeton's "Practical Assistant." London: Lockwood and Co., 7, Stationers'-hall Court.

LAYING THE FOUNDATION STONE OF ST. ANDREW'S CHURCH.

SEVERAL months ago we announced that a contract for the erection of this structure, according to a modified design by the architects, had been entered into by the Committee with Mr. John Butler, of Rathmines; and although in the interval the necessary preliminaries of clearing the site and razing the skeleton ruins of the old church were proceeded with, it was not until the 11th inst. that the laying of the first stone took place. This ceremony, which was performed by his Excellency the Lord Lieutenant, was, as we are informed, witnessed by a large number of ladies and gentlemen, "invited to attend;" but as we were not amongst those so favoured—and our attempt at entrance to the enclosure was impeded by inflexible civic functionaries—we are unable to record further of the proceedings than what may be gleaned from our contemporaries of the 12th inst. This fact reflects, to say the least, on the good taste of the management, considering that, "since the day the former "Round Church" was destroyed by fire, we have carefully and fully recorded every circumstance both connected with that occurrence and the projected rebuilding, besides giving a comprehensive review of the competition, and illustrations of the adopted designs. We are disposed to regard the circumstance as an oversight, though hardly a justifiable one, or hardly complimentary to the numerous readers of an established class periodical. At the commencement of the proceedings Mr. Acheson, one of the Honorary Secretaries, read the following address:—

"MAY IT PLEASE YOUR EXCELLENCY—We, the Clergy, Churchwardens, and Parishioners of St. Andrew's Parish, approach your Excellency, as the representative of our most gracious Queen, with the warmest feelings of loyalty and attachment to her Majesty, fervently praying that our Sovereign may long live to adorn that throne she is so eminently fitted to fill, and that Almighty God may give her strength to bear the heavy trials with which it has pleased Him to afflict her. To your Excellency we are deeply indebted for the great kindness and courtesy always extended to us, and for which we take the present opportunity of returning our most grateful thanks. When selecting a design for the intended new church, your Excellency patronized our arduous undertaking, approved of our plans, applauded our decision, and, not content with granting that influence which the name of one in so exalted a position invariably carries with it, presented the parish with a valuable richly-carved oak pulpit, subscribed again and again to the building fund, and has honoured us by this day inaugurating our undertaking, and laying the first stone of the new Church of St. Andrew. We trust your Excellency will not deem a few remarks on the history of the church out of place on the present occasion. This parish, which is of great antiquity,* was, in the reign of Charles II. (A.D. 1665), created a lay corporation, with certain powers vested in the churchwardens and parishioners; and at that time the church and grave-yard were situated in Dame-street, where George's-street now is, and the Castle Market was.† We collect from the records that the Church being in ruins, an Act of Parliament was procured to enable the parishioners to build a new one on this site, where we now stand, at that time called 'the Old Bowling Green,' granted by the then Lord Bishop of Meath—that this Church was commenced in the year 1670, and finished within four years, and was of the same oval form as that recently destroyed by fire. During the progress of the building there was a considerable amount of distress in the city, and, as a necessary consequence, a great difficulty experienced

* So early as the 12th century a church dedicated to St. Andrew the Apostle was in existence, the parish of which is styled "the parish of St. Andrew de Thengmothe," and in a document of the 14th century the locality of this church is denominated the "street of the Thungmote, outside the gate of the Blessed St. Mary del Dam"—so called from the "Thung-mote," where the Northernmen of Dublin used to hold their deliberative assemblies, which were called "Thungs." The name of Henricus de Wigornia, Rector of St. Andrew's Church, near Dublin, occurs in a document of the year 1243, and in one of the year 1453 the cemetery of St. Andrew's is referred to; and in it down to the beginning of the 17th century, the youths of the city held their annual election of the "Mayor of the Bull-Ring," an officer elected annually by the citizens "to be, as it were, the captain or guardian of the bachelors and the unwedded youth of the civitate."—*Gilbert's History of Dublin.*

† It was in this place that King Henry II. received the homage of the princes of Ireland in the year 1171. "The King kept his Christmas at Dublin in as great state as the place would then allow, for there was no house there capable of receiving his retinue, and therefore he was under the necessity of hastily erecting near St. Andrew's Church a long pavilion, like a cabin, composed of smooth wattles after the manner of the country, which being well furnished with plate, household stuff, and good cheer, made a better appearance than ever had been before seen in Ireland. Many of the Irish princes flocked thither to pay their duty to the King, not without admiration and applause of his magnificence."—*Harris's History of Dublin.* "Many and most part of the princes of the land resorted and made repair unto Dublin to see the King's court; and when they saw the great abundance of victuals and the noble services, as also the eating of cranes, which they much loathed, being not before accustomed thereunto, they much wondered and marvelled thereat; but in the end, they, being by the King's commandment set down, did also there eat and drink among them."—*Gilbert's History of Dublin.*

in procuring funds. These were obtained, first, by voluntary contributions, then an assessment by the sale of pews and vaults, and by leasing to one Captain Nicholas the old church-yard for forty-one years, with a further extension of twenty years, for the sum of £80, as a part set-off against moneys due to him for bricks, lime, and other materials. Perhaps the most extraordinary fact connected with this building is, that it only cost £1,750, although it had galleries, and was of the same size and shape as the late church (the tower and front porch only excepted). It must have been, we fear, a very comfortable edifice, as in the year 1679 it was ordered to be paved with nine-inch tiles, and in 1695 the floor was flagged. Notwithstanding the smallness of the cost, there seemed to have been great difficulty in getting the amount required. The sum assessed on the parish was £741, out of which only £133 were paid; and although the vestry obtained a decree from the Court of Chancery, giving the churchwardens power to distrain, the church was opened with a debt on it of £400. In 1747 it was newly roofed and repaired at an expense of £1,239 14s. 5d., £500 of which was granted by Parliament; yet in the year 1793 this church was so much decayed, both inside and outside, a committee was appointed, and ordered to have the walls taken down to the base of the windows; and, to use their own words, 'Nothing was left standing but an inconsiderable part of the shell of the body of the old church and its foundations; and that ever since the year 1756 to the present year, 1793, the roof of the church had been a continual drain of cash from the parish.' The committee at once determined to build a church worthy of the locality and the parish, in which were then situated the Irish Houses of Parliament. They petitioned the Earl of Westmorland, then Lord Lieutenant of Ireland, the Chief Secretary, the Chancellor of the Exchequer, the House of Commons, and the Right Hon. John Foster, Speaker of the House, to whose memory, even at this distance of time, with your Excellency's permission, we wish to pay a just tribute of respect, as one who most consistently advocated, by all means in his power, the claims of the parish, and procured from the Irish House of Commons two sums amounting to £1,500, and after the Union a further sum of £6,000 from the United Parliament. We have the more pleasure in noticing the acts of a truly great man, now passed to his rest, as we have the privilege of addressing, in our Viceroys, an English nobleman, whose sympathies are with us, and who, not content with a mere formal donation, takes a deep interest in all that concerns the welfare and advancement of our city. The entire cost of rebuilding this church (including the tower and organ) was £22,000; the balance of this amount was procured by voluntary subscriptions, the sale of pews, and by loans, subsequently paid by applotments. The *Herald* newspaper of that day gave the following description of the building:—"St. Andrew's Church.—It is with heartfelt satisfaction that we congratulate the public, and particularly the parishioners, that St. Andrew's Church, having undergone a complete repair, will be re-opened for Divine Service on Sunday next. Although the long period of fourteen years has nearly elapsed since the work was begun, when we reflect on the almost insuperable difficulties that occurred in its progress—an expensive lawsuit, the difficulty of raising the money requisite for so extensive an undertaking, and the war on the Continent, which delayed the Riga oak for the pews and galleries—we presume to say that the churchwardens and committee for conducting the repairs have deserved well, and that their labours have been successfully completed. Aided by the liberality of their fellow-parishioners and the justice of Parliament in granting a debt long due and of a large amount, and calling to their aid an architect of great taste and ability, they will enjoy the pleasure of opening their church to the view of an admiring public, and present them with the most beautiful place of worship, of its size, in the empire. A short, but imperfect, description may suffice to confirm the above observation. The interior is an oval of 80 feet by 60, and 44 high to the ceiling. On entering the great door you are struck with a *coup d'œil*, certainly not inferior to the boasted St. Stephen's Walbrook; passing up the centre aisle, which is flagged in beautiful curves of white and red stone, you approach the font, which stands in the midst of the church, and is exquisitely sculptured in Italian dove-coloured marble; over it hangs the magnificent branch* which belonged to the late House of Commons; before you are the altar, the reading desk, pulpit, organ, and gallery for the children of the schools, all rising from the floor in regular gradation, and presenting a scene of uncommon beauty and grandeur, and ornamented with most admirable carving. The organ, built by Woffington, is on a very large scale, has sixteen stops, and near one thousand pipes. Amateurs who have tried it are of opinion that, from its size, compass, and tone, it will be one of the finest instruments in the kingdom, and its grand exterior, presenting three fronts, is worthy of the situation.

* This branch is now in the Examination Hall of Trinity College.

The seats below rise in regular rows from the centre to the back of the aisle, and from their form all the auditors are placed so as to direct their views to the pulpit, and are the most convenient we have seen in any church; the whole is finished with finest Riga oak, except the ornamental part, the capitals of the columns, pilasters, and rail of the communion table, which are of old Irish oak—and never did that beautiful and valuable timber appear to more advantage. It is only justice to add, that the whole is from the designs of Francis Johnston, Esq., architect; the carpentry by Mr. Lever, of the North-strand; and the carving by Mr. Bayley. The opening of the church was thus described in the *Herald* of the 9th of March, 1807:—‘The opening of this church took place yesterday, and was conducted with a splendour, regularity, and decent solemnity, that do the highest honor to the committee who had the management of the whole. His Grace the Lord Lieutenant, with his suite, accompanied by the chief nobility and gentry in town, attended divine service. The choir of Christ Church at different intervals performed with their usual pathos and effect. The sermon in aid of the charity was preached by Dr. Douglas, in a manner worthy of the character given of him by the great patriot of Ireland (Henry Grattan). The utmost order was observed at one of the most numerous assemblies we have ever witnessed at public worship, and the sum received by the collectors, among whom were the Archbishops of Cashel and Tuam, the Bishops of Kildare and Down, and the Lords Chief Justice and Chief Baron, amounted to nearly £500.’ From the labours of the committee who had charge of that undertaking, the present generation may learn a useful and instructive lesson. It is true this year is one of great depression and distress, caused by partial failure of the harvest, and the civil war in America; but they had to procure money to build a church nearly double the estimated cost of that of which we are about to lay the foundation stone, when none of those improvements of which we can boast were effected—the country impoverished, the French revolution at its height, war on the continent, a northern confederacy against Great Britain, an unprecedented depression in the funds, a discontinuance of cash payments in the bank, a threatened invasion of England, a rebellion in Ireland, a war in India, and, not least, the great excitement inseparable from the Act of Union. And yet this committee did not despond nor despair, but with unabated energy continued their exertions until they had completed the work they had undertaken. This church was, with the exception of the tower, entirely destroyed by fire on Sunday morning, the 8th of January, 1860, after early divine service, at which the Rev. C. K. Tisdall, D.D., officiated (whose ministration filled the church, before deserted, and revived the charitable institutions of the parish), and so rapid were the flames, that one hour sufficed to ruin the work of fourteen years. The laws having been altered, vesting the building and repairing of parish churches in the Ecclesiastical Commissioners, we applied to these gentlemen to rebuild the church, which we considered they ought to have insured, or becoming their own insurers, were bound to replace; and accordingly they allocated a sum of £4,300 to this purpose. The parishioners of St. Andrew’s, however—being most anxious to improve the church architecture of Dublin, which is deplorably bad—resolved to erect a place of worship which would be a credit not only to the parish, but to the city at large. They accordingly selected the very beautiful plans which were designed expressly for this church by Messrs. Lanyon, Lynn and Lanyon, of Belfast, and (as the sum allocated by the Ecclesiastical Commissioners was totally inadequate to erect so handsome an edifice) resolved to raise the balance required to complete it by public subscription. This design is in the style of the early decorated period of Gothic architecture, and when completed will be capable of holding 1,000 persons. Its extreme length will be 136 feet; its breadth will be 100 feet; and height will be 70 feet; the tower and spire, 180 feet. It is intended to build, at first, sufficient of the design to enable the clergy to celebrate divine service—the cost of which, namely, £7,230, is now in the hands of the Ecclesiastical Commissioners; and afterwards to add the spire and belfry at an expense of £2,600; the cloisters, porch, and north aisle for £2,250; and finally, the external ornamentation on the chancel and clergy’s porch, at an additional outlay of £646. Making, in all, the sum of £12,735 to complete the building. We require, then, a sum of £5,505, and to meet this we have £237 in the treasurer’s hands, and £2,749 promised subscriptions, including £850 in the Court of Chancery. Among these uncollected amounts, we desire to call attention to one item of £1,000, to be given on condition that the entire balance necessary for completing the church be subscribed. This offer will be deemed the more praiseworthy when we mention that the donor of this munificent sum refused to give his name, while he has taken steps to guarantee the money. Our respected fellow-citizen, Alderman Atkinson, has also contributed the munificent sum of £500. A like amount was given by the Rev. William Bourne, our late Vicar. We trust that these noble examples will be followed by others, that the hands of the committee may be

strengthened, and that they will receive that timely assistance which is required. We again beg to tender to your Excellency our warmest thanks, assuring you that we are determined, with God’s blessing, if we are spared life and strength, not to relax our efforts until we have thoroughly accomplished this work—until the top stone is placed on the steeple. We feel that we have the Great Architect of the Universe on our side, and trusting in his Almighty aid, do not fear the result.—Signed on behalf of the committee,

“JOHN CHAMBERS, Chairman.

“WILLIAM ACHESON, T.C., Hon. Sec.”

The Lord Lieutenant then replied as follows:—“Gentlemen, I pray the clergy, churchwardens, and parishioners of St. Andrew’s to receive my very warm thanks for their loyal and kindly address. I feel very happy and very grateful to have been enabled to join myself to them and to our fellow-churchmen of Dublin generally in the interesting and solemn work of laying the first stone of their new parish church. It is gratifying to find that thus much has been already secured by the liberality of the community; but I must be allowed to express my earnest hope that nothing will be left undone to complete the design of the accomplished architect, and to make the new building a credit to the city and not an unfit embodiment of its high and holy destination. We know that the worship of the devout lip and the contrite heart and the aspiring spirit does not depend upon art or man’s device. In rural and sequestered quarters nothing may be required

‘But such plain roofs as piety can raise,
And only vocal with the Maker’s praise.’

But here upon the spot where I now stand—here in the very heart, the busy central heart of Dublin—here within sight of the noblest monuments of her architecture, let no niggard shortcoming be a blot alike upon our taste and our piety. It is my sincere and sanguine hope that whenever the new church shall first be thrown open, whoever may be the Viceroy who shall assist at its solemn consecration, he will there see before him an edifice of spacious and comely proportions. It is yet my more deep and fervent hope that within the walls which shall then receive their crowd of worshippers, the blended voice of prayer, the swelling song of praise, the oracles of the Eternal Gospel may never more be silent.”

After some concluding remarks the Lord Lieutenant then descended to the spot where the stone was to be laid.

A splendid silver trowel was presented to the Lord Lieutenant by Alderman Atkinson. This trowel has a handle of bog oak, in the form of an octagon, carved with ancient Irish knots, and surmounted at the end by a silver figure of St. Andrew with the cross. The junction of the handle to the blade is a Gothic column of silver, decorated with ivy leaves. The blade is beautifully engraved in mediæval characters, and its surface separated into divisions. The upper of these divisions, at the point of the blade, displays the arms of his Excellency the Lord Lieutenant. On the second division is the inscription—“Presented to his Excellency George William Frederick, Earl of Carlisle, Lord Lieutenant-General and General Governor of Ireland, on the occasion of laying the foundation-stone of St. Andrew’s Church, Dublin.” On another division is set out the following record:—“Vicar (blank); Curates—Rev. Charles E. Tisdall, D.D., Rev. Edward Seymour, M.A. Messrs. Lanyon, Lynn, and Lanyon, Belfast, Architects. J. Butler and Son, Dublin, Contractors. William Acheson, T.C., Honorary Secretary, 11th August, 1862.”

Alderman Atkinson, in presenting the trowel, said—“May it please your Excellency—I have been deputed by the Building Committee to present this trowel to your Excellency for the purpose of being used in laying the foundation-stone of St. Andrew’s Parish Church. It will be a pleasing memento in future years of the important and interesting ceremony in which your Excellency is about to take such a prominent part. The Committee feel assured that from your Excellency’s munificent donation and the giving the aid of your Excellency’s high position and moral influence, this undertaking has your cordial sympathy and support. On all occasions your Excellency has evinced an earnest desire to promote the religious, moral, and social condition of the community. The present is another of those occasions in unison with your Excellency’s feelings—the laying the foundation-stone of an edifice to be consecrated to the public worship of Almighty God, wherein those solemn Scriptural truths of our common Christianity will be set forth—namely, repentance towards God and faith in the merits of our Saviour; also that fundamental rule of Christian doctrine, love to God and to our fellow-men, which, it is written, is the ‘fulfilling of the law,’ and, ‘that charity which suffereth long and is kind.’ These sentiments are in keeping with your Excellency’s expressed views, as set forth in many of your Excellency’s admirable and instructive speeches.”

A copy of the address, the form of prayer used at the ceremonial, the current coins of the realm, and a paper with the following inscription, were placed in a bottle, and laid with the stone:—

"ST. ANDREW'S CHURCH.

"The foundation stone of this church, was laid under the direction of Her Majesty's Ecclesiastical Commissioners for Ireland, by His Excellency the Earl of Carlisle, Lord Lieutenant General and General Governor of Ireland, on the 11th of August, 1862.

"*Ecclesiastical Commissioners*—His Grace the Archbishop of Dublin, the Lord High Chancellor, the Lord Chief Justice, the Right Hon. the Lord Bishop of Meath, the Bishop of Ossory, the Right Hon. the Lord Bishop of Tuam, Arthur E. Gayer, LL.D.; William Charles Quin, Esq.

"*Vicar*—Not yet appointed.

"*Curates*—Rev. Charles E. Tisdall, D.D.; Rev. E. Seymour, M.A.

"*Churchwardens*—Joseph Manning, Esq., T.C.; Thomas Pettigrew, Esq.; John Wisheart, Esq.

"*Architects*—Messrs. Lanyon, Lynn and Lanyon, of Belfast and Dublin. Architects to the Commissioners—Messrs. Welland and Gillespie.

"*Secretary to the Commissioners*—Thomas Bushe, Esq.

"*Contractors*—Messrs. Butler and Son, Dublin."

The stone, a plain block of granite, having been placed, the Lord Lieutenant struck it with the trowel and said, "I declare this stone to be well and truly laid." The stone was also struck by the contractor.

Cheers were then given for the Lord Lieutenant, and also for Alderman Atkinson.

The Lord Lieutenant having returned to the dais,

Mr. Acheson, T.C., said—"May it please your Excellency—I have been requested, in the unavoidable absence of our chairman, Mr. Chambers, to tender to your Excellency, on the part of the parishioners of St. Andrew's, their best and warmest thanks for the many favours you have extended to them, and more especially for your presence here to-day, and for that eloquent reply which you have given to us. Be assured that we shall always retain a vivid and lasting impression, not only of the great anxiety which your Excellency has always evinced for the prosperity of this country and the advancement of the people—these are now matters of history—but that your Excellency has responded to the request of the inhabitants of a section of this city—that you have come here to-day, sharing in our work, joining in our labour, sympathizing with us in our undertaking, and laying that foundation-stone. Trust me, that as these walls are built up, and as the temple is completed for those purposes to which you have so eloquently alluded, our memories will still revert to this auspicious occasion, and we will gladly avail ourselves of any opportunity to pay a tribute of respect and of welcome to this parish to the Earl of Carlisle."

The Archdeacon of Dublin then pronounced the benediction, with which the proceedings terminated.

THE COPYRIGHT (WORKS OF ART) ACT.

LAST week we* furnished our readers with the most important clauses of this statute. It must be borne in mind that it only relates to "every original painting, drawing and photograph," which shall be or shall have been made either in the British dominions or elsewhere, and which shall not have been sold or disposed of before the 29th of July last. The term of copyright granted by the Act is for the author's life and seven years afterwards; but the benefits of such copyright will be lost without registration of the work, because it is expressly enacted that "no proprietor of any such copyright shall be entitled to the benefit of this Act until registration; and no action shall be sustainable nor any penalty be recoverable in respect of anything done before registration. Practically, therefore, the grant of copyright is made subject to the performance of the condition precedent of registration. It is, consequently, of the utmost importance to every author and proprietor of a copyright picture, drawing or photograph, that it should be registered immediately upon its completion.

No one need be alarmed at the trouble or cost of registration. It is an affair of the most simple and inexpensive description. The office appointed for registering under the Act is at *Stationers' Hall*, which is in "Stationers' Court," on the north side of Ludgate-hill. It will only be requisite to obtain, fill up and sign a printed form. To this a sketch, outline, or photograph of the work registered may be annexed. The form, properly filled up and signed, must be left at Stationers' Hall; a fee of one shilling paid to the registrar; and this will include the whole mystery and trouble of registration. Let it be clearly understood that it will not, under any circumstances, be requisite to produce the picture or other work in which the copyright is claimed to the registrar either at Stationers' Hall or elsewhere; and that neither the author nor other proprietor of a copyright work can be required

personally to attend for the purpose of registering it. Practically, we make no doubt that the registration of an artist's works will be entrusted to his frame maker, and that the author of a work will never find it requisite to quit his own studio for the purpose of such registration. At the time of registering a work, we think it will be found most advisable to obtain from the registrar a certified copy of the entry of the work registered, because such copy under the hand of the registrar and seal of the Stationers' Company, "shall be received in evidence in all courts, and in all summary proceedings, and shall be *prima facie* proof of the proprietorship of copyright or license as therein expressed." Besides, the production of such certificate by the proprietor of a copyright work will aid its authenticity, and consequently add to its pecuniary value. The registrar's fee for a certified copy of the entry in the register is *five shillings*, the same as it is for a similar certificate of an entry as to a literary or musical copyright work.

As to the persons who are entitled to be registered as the proprietors of a copyright in a picture, drawing or photograph, they are—1. The author of any such work who has executed it on his own account, not as a commission, and has not sold or otherwise disposed or been dispossessed of his copyright therein. 2. The purchaser of an author's copyright in his work executed on his own account. 3. The employer for, or on whose behalf, a picture, drawing or photograph shall have been executed, and who accepts the same after its completion. 4. The husband of an authoress of any such uncommissioned and unsold work. 5. The legatee, executor, administrator, assignee in bankruptcy, or other person in whom the copyright may have been vested by bequest or operation of law.

In the event of any entry in the register being either wrongfully or erroneously made, the person who shall deem himself to be aggrieved by such entry may apply to one of the Superior Common Law Courts in Term time, or to a judge thereof in vacation, for the purpose of expunging or varying such entry; and such court or judge has power to order the entry to be expunged, varied or confirmed, either with or without costs, as to such court or judge shall seem just.

The sale of copyright in a picture, drawing or photograph must be made by some note or memorandum in writing, to be signed by the proprietor of the copyright, or by his agent appointed for that purpose, in writing. And when an artist first sells or disposes of his picture, or executes it on a commission, if he means to retain the copyright, he must remember that he can only do so by its being expressly reserved to him by agreement in writing, signed at or before the time of such sale or disposition by the purchaser, or the person who commissioned the work, as the case may be. Any such agreement may form part of the receipt given for the purchase-money: a duplicate of such receipt should be made, so that each party may retain one, to be signed by both the vendor and purchaser, or owner of the work. To obtain the protection of the statute, the first and every subsequent purchaser of a copyright must, as it seems, register his assignment thereof.

And now one word of caution to artists, amongst many of whom it seems to be imagined that any slight variation in the design or colour of a picture is sufficient to render it an original work. Nothing can be more erroneous than this artistic construction of the meaning of an "original picture," and it is of great importance to artists that they should correctly understand and appreciate their position on the subject. According to the law, as it now most justly stands, in every case where an artist is not the proprietor of a copyright in the picture executed by him, it will be at his peril if he copies or repeats the design, or any material portion of it, without the consent in writing of the proprietor of the copyright in the original work. Apart from the penalties imposed by the statute for any such act of piracy, the proprietor of the copyright would be entitled to sue the offenders for such damages as the proprietor could prove he had sustained by the infringement of copyright.

If artists will but take reasonable care to secure their copyrights, and also bear constantly in mind what is just as regards the interests of the purchasers of their works, neither they nor any honest dealer need fear the operation of this new law of Copyright in Works of Art; on the contrary, we believe it will prove a great boon to all honourable men, and that fraudulent manufacturers and dealers will be the only sufferers, to the inestimable benefit of British art and artists, as well as of the public generally.

FIRE INSURANCE DUTY.—By the parliamentary return issued of all sums paid for duty on insurance against fire during the past year, it appears that the six London offices paying the largest amount of duty are—the Alliance, County, Imperial, Phoenix, Royal Exchange, and Sun. The total amount of duty received in the United Kingdom for the year 1861 was £1,811,677, being £53,000 in excess of the previous year.

* *Athenaeum* of 9th Inst.

IRISH SOCIAL AND INDUSTRIAL STATISTICS.—VI.

RATE OF MORTALITY.—NORTH AND SOUTH.

PERHAPS in no country in the world have we proofs so decisive and convincing as in Ireland of the influence of superior habits in a given section, province, or district, in promoting the public health therein. The mortality statistics of Dublin—as we have shown in our last article—present the lesson equally grave and significant of the result, in one district of improvements in the dwellings and domestic arrangements, and the result in the other districts of the total neglect of those essential particulars. This lesson, we will now proceed to show, is taught with equal, if not much greater, force in the mortality statistics of all Ireland—in the contrasts which may be afforded between our best and our other provinces.

In their report for 1841, the Census Commissioners had occasion to notice a very remarkable sanitary superiority in Ulster over the other provinces of Ireland. Taking the death returns for the year immediately preceding the census, they found the rate of mortality in Ulster that year (1840-41) was but 1.57 per cent.; while the mean rate of all Ireland was 1.81 per cent. These death returns, however, represented, for the reasons we have already stated, 75 per cent. only of the actual mortality; and the true rates for all Ireland, and for Ulster, must, therefore, in this year, and for the decennium ending in 1841, probably be set down at 2.41 and 2.11 respectively—a difference of no less than 30 per cent. in favour of Ulster.

In the Census Report for 1851, there is no attempt to analyse the death returns, or to indicate the rate of mortality; but we have the tables of deaths in every county and province given in detail, to guide us to accurate conclusions. Taking those for the year 1850—as the one nearest the census year, and the nearest to accuracy—we find the total mortality in Ireland summed up at 123,504, and that of Ulster at 32,231. In March, 1851, the population of all Ireland was found to be 6,552,385, and that of Ulster 2,011,880; and hence we have death rates—so far as the census returns extend to—for Ireland of 1.88 per cent., and for Ulster of 1.60 only. Supplying the deficiencies in the returns as before, we may set down the probable mortality rate for Ireland and for Ulster, in the year 1850, and the decennium ending in 1851, at 2.50 and 2.18 respectively, being a sanitary superiority for Ulster of .37 per cent.

Pending the publication of the complete census report for 1861, and in the absence of the mortality tables appended thereto, we will attempt, with the guidance of other and independent authorities, to estimate the relative sanitary condition of Ulster and Ireland during the ten years ending in 1861. In 1851 the population of Ireland was found by census to be 6,552,385—that of Ulster, 2,011,880. In 1861, by census, Ireland was found to have 5,764,543 inhabitants, and Ulster, 1,910,408—showing a decline in the former of 787,842, or 12.02; but in the latter of only 101,472, or 5.04 per cent. For this remarkable difference in the rate of decline two leading causes may be assigned, viz.—emigration in larger proportions from the other provinces than from Ulster, and excessive mortality in the one over the other. In the absence of our mortality statistics, let us investigate those relative to emigration, as presented in the annual reports of the Emigration Commissioners. According to the returns published by these authorities, the total emigration from Ireland, from the 1st of January, 1851, to the 1st of January, 1861, amounted to over 1,200,000 persons, or 17.75 of the entire population in 1851. To this aggregate the four provinces were found to contribute in the following order:—Munster, 23.17 per cent.; Ulster, 18.71; Leinster, 13.95; and Connaught, 13.48. Here, then, we have Ulster the next to Munster in the proportion of her drain or loss of population by emigration, and approaching within 1.04 per cent. of the mean rate of loss all over Ireland; and, taking this 1.04 from the 6.98 per cent., the lesser rate of decline exhibited by Ulster, we have a balance of 5.94, representing a population of 380,000 remaining unaccounted for. No doubt, some immigration into Ulster from the adjacent provinces may and did occur; but we cannot suppose such immigration extensive, when we observe the emigration or outflow of population from Ulster was on a more extensive scale than from either of those neighbouring provinces. Neither can we attribute much of this lesser rate of decline to the prevalence of a larger birth-rate in Ulster; the contrary we should expect to be the case, from the proved previous existence of a smaller mortality rate. Nature, by a curiously provident provision—the existence of which the vital statistics of every country demonstrates—increases or diminishes the birth rate with the increase or the diminution in that of the mortality. The conclusion, then, is irresistible, that this remarkable difference between Ulster and the other parts of Ireland is mainly to be attributed to the *continuance of the sanitary superiority in Ulster during the last decennium which was observed by the Census Commissioners in their reports for 1841 and 1851.*

What this sanitary superiority represents in the saving of life in

the case of Ulster, and what it, on the other hand, represents in the waste of life and creative power in the other provinces, may be thus estimated:—Between 1831 and 1841, .30 per cent. per annum less of the population of Ulster died than died according to the mean rate then prevailing over Ireland. 7,500,000 may be taken as a mean for the population during the period—and on this population 30 per cent. of an excessive mortality rate represents a positive waste of life of 22,500 persons per annum, or 225,000 in the decennium. Taking 7,300,000 as a mean population between 1841 and 1851, we have in an excessive mortality rate of .37 per cent., 25,000 per annum, and 250,000 in the ten years, as the comparative waste of life. This waste appears to have been going on with increased prodigality between 1851 and 1861, and may, perhaps, absorb 300,000 out of the 380,000, whose disappearance in this period neither our emigration statistics, or any probable theory of deficient reproductive power, or immigration, can account for.

Ulster is inhabited by people of the same race with the rest of Ireland—its climate is the same—land and water, air and sunshine exist in and for it, under circumstances precisely similar. It has no advantages but those of man's creation; the other provinces have no disadvantages but those resulting from human negligence; and if people, by living in filthy habitations, and disregarding personal and domestic cleanliness; or, corporate authorities, by leaving the poorer localities with sewers and a pure water supply, are found to be the true agents in producing this excessive mortality and waste of life in one part of Ireland over the other, may it not be asked—Is there not a serious moral responsibility incurred by either the one or the other?

THE WATERWORKS ENGINEERS.

FROM the recently presented report of the Dublin Waterworks Committee we take the following, which is a gratifying evidence that in carrying out this important project there is no further necessity for extraneous engineering assistance, our local professionals being fully equal to the task:—

"Your committee were enabled to make arrangements with Sir John M'Neill, C.E.—whose position at the head of his profession in Ireland has been long recognized—by which your committee have had the advantage of his professional assistance, as advising and consulting engineer in the preparation of the working drawings, plans, and specifications, and will have the benefit of his experience in supervising the construction of your works. The arrangement with Sir John M'Neill is one that is frequently made with great advantage in England, and the principle of which received the approbation of the highest professional authority in the sister kingdom. The terms of this arrangement are stated in detail in the memorandum of agreement prepared by your law agent, freed from the technicalities of legal phraseology. The arrangement is one by which payment will be made to Sir John M'Neill for the time actually occupied* on the business of the corporation, at the same scale of fees as were actually paid to Mr. Hawkesle. Your committee have to report that they have engaged the services of Mr. Thomas P. S. Crosthwait, son of our respected fellow-citizen, Thomas Crosthwait, Esq., and of Mr. Andrew Pallas, also a fellow-citizen, both of whom are actively engaged in preparing the working drawings for several portions of your works, under the superintendence of Sir John M'Neill, and your city engineer, Mr. Neville. These gentlemen, and Mr. Carter, the senior assistant, have given your committee and your engineers the greatest satisfaction, and when in a very few days your committee will place before you the elaborate and detailed drawings on which they have been engaged, we have little doubt but that this department of your works will prove as creditable to the industry and talents of the professional gentlemen engaged on them as they will be satisfactory to you. The arrangements with these several gentlemen are temporary and provisional; but your committee confidently hope to be able, with your sanction and approval, to secure their services during the construction of the works as resident assistants. Your committee beg to place before you a report from a sub-committee appointed to consider what remuneration ought to be recommended to be given to your city engineer, Mr. Neville, for the enormous amount of extra labour which he involuntarily undertook, and the great zeal and ability displayed by him in examining, surveying, and reporting on the several proposed plans for supplying the city with water. Your committee feel that Mr. Neville has performed an almost incredible amount of extra duty in connexion with the whole inquiry, and that his special services in relation to the act of 1861 were in themselves of such a character, as to demand a substantial recognition from the council. Your committee therefore approve of the recommendation of the sub-committee, and recommend same for the approval and adoption of your council, on condition that the increase of salary be referred to the salaries committee."

* Viz., the *quantum meruit* principle—setting aside that of percentage—to which we should always incline as the most equitable.—Ed.

THE PROPOSED NEW CARLISLE BRIDGE.

IN accordance with the promise contained in our last Number, we include herewith an illustration of one of the designs for an iron structure, submitted in this important competition, and which, with some sixty others, is still under the consideration of the referees appointed by the Committee, viz., General Sir Thomas Larcom, Sir Richard Griffith (Chairman of Board of Public Works), and Colonel M'Kerlie, R.E., (Commissioners of do.) In addition to the particulars of this, communicated in our general description of *all* the designs (continued in present Number), we give the following extracts from a document submitted, with the drawings, by the authors, Messrs. George Gordon Page, of London, son and pupil of the eminent engineer of Westminster and Chelsea (suspension) bridges, &c., and Richard Turner, of Hammersmith Iron Works, Dublin, conjointly.

"We have endeavoured to follow out the wishes of the Committee, viz., that the bridge shall be *level*; the whole breadth of Sackville-street; abutments of stone; iron superstructure, and provision to do honour to illustrious men. The principles of the design are—that the structure should be of the most substantial and permanent kind; the water-way improved; and least possible obstruction offered to admission and discharge of fresh and tidal waters. The design consists of a single arch of 140 feet width, with a rise of 10×6; the tracer rib and rib under the footpath springing at the level of high water. The ribs under carriage way are one foot lower, to obtain greater depth and rigidity. The distance from face to face of embankment is 157·6, consequently abutments would stand out 8·9 beyond line of embankment wall. The construction of the arches would be in *cast* iron from the abutments to within 25 feet of the crown of the arch, the centre piece forming the key of the arch, 50 feet, being of *wrought* iron, so that the thinnest part of the bridge, which is in immediate contiguity with the roadway, and consequently subject to more shock from the traffic, would be of the safest material.* This principle has been carried out with great success at Westminster new bridge. All the central portion of the arch where the wrought iron ribs are inserted would be of *wrought* iron. Between the main ribs cross girders and beams, 3·6 apart, would be fixed, and on them are intended to be laid *wrought* iron buckle plates, with water-tight elastic bed to receive macadamizing and ballast of roadway. Footpaths are proposed to be of granite, of large sizes and hard quality, or of thick Valentinian slate.

"The detail drawings are submitted to inspire confidence that the Bridge built on this construction cannot fail to be remarkable for its stability and excellence; and be in every way most suitable for, and adapted to its position and traffic. As to the embellishments, we have introduced the City of Dublin arms and motto in the spandrels, with the Irish harp and the shamrock to fill up the spaces, all carried out in open work. The pattern in the balustrade, and the arrangement of pedestals on abutments can be altered if desired. The authors, however, suggest as suitable, equestrian figures of the Queen and late Prince Consort next Sackville-street, and Wellington and Gough on corresponding pedestals at other end; with Lord Carlisle's arms in the centre, as it so happens not only to bear his name as a justly popular Viceroy, but of a noble ancestor, also Viceroy, after whom the bridge was called. The cast metal kerbing, with roughed gutter and drains, will be useful as well as slightly, and we have kept the lamps on the edges of the footpaths, as best for lighting."

[We have also placed in our engraver's hands one of the designs for "a stone" bridge, that equal justice in the way of publicity may be done to the promoters of the respective classes of structures.]

THE ALBERT (CENTRAL) MEMORIAL.

THE following is the reply of Lieutenant-General Grey, dated Osborne, July 18, to Sir Charles Eastlake, R.A., in acknowledgment of the report of the Committee:—

"The Queen desires me to acknowledge, through you, the receipt of the further report of the committee her Majesty had asked to advise her on the subject of the proposed national monument to the Prince Consort. Knowing the importance attached by the Prince to the establishment of some central institution for the promotion of scientific and artistic education, the Queen is much pleased with your recommendation that the personal monument to his Royal Highness should be in immediate connexion with buildings appro-

* Touching the question of *wrought* iron for the construction of bridges, *The Engineer*, in a recent Number, has the following:—

"We have expressed our doubts of the propriety of exposing wrought iron to compression in arches of wide span. If wrought iron arched ribs are to be made, they should, we think, be formed after the manner of tubular girders, so as to have great lateral stiffness. At present the 175 feet spans of the Pimlico Railway bridge are formed of ribs only 4 feet deep, connected by occasional cross bracing. If enough iron were employed, the arrangement might be as secure as cast iron arches, but in that case the wrought iron arches would cost twice as much as cast iron ribs. Messrs. Page and Turner would prefer making the entire arch of cast iron, provided they be allowed to diminish the headway some 6 or 7 inches, by increasing the depth of rib.

riated to that object. Your report, therefore, suggesting the erection of a central hall as the commencement of such buildings, and in connexion with the personal monument to be placed directly opposite to it in Hyde Park, meets with her Majesty's entire and cordial approval; and should public support afford the means of giving effect to your recommendation, it will be far from being a matter of regret to her Majesty that the difficulties in the way of the original suggestion of an obelisk, as the principal feature of the proposed monument, were such as to lead you to counsel the abandonment of that idea. Few things, indeed, could now make the Queen more happy than to be allowed to witness the realization of some of her beloved husband's noble plans for the benefit of mankind. She knows how constantly he regretted that much of the good which the many institutions founded for the advancement of science and art, in some one or other of their branches, were calculated to effect, was lost by their isolation and want of connexion with each other. But, though strongly convinced of the advantage that would follow their being brought together, he was also strongly impressed with the importance of not interfering in any way with their free and voluntary action; believing that their union, to be productive of good, must be an enforced union, brought about by a generally felt opinion of its necessity, and meeting with public support. In fact it was to public, as distinguished from Government or parliamentary support, that he always looked for the means of giving effect to his plans. He was, therefore, content to wait with patience till the conviction should have forced itself on the public mind, as it had long done on his own, of the expediency of giving to those bodies some general organisation or point of union, which should enable them mutually to assist each other in promoting their several objects; while it should leave untouched their power of independent action, and extend rather than limit their sphere of individual usefulness. It would have gratified the Prince much, therefore, and it is now a source of some consolation to the Queen to find, that one of his great ideas for the good of the world (for his views were by no means limited to this country) forms the basis of the recommendation contained in your report; and her Majesty can have no dearer wish on this subject than that the estate purchased, as you say, by his 'judicious counsel' and wise 'foresight and decision' should be devoted to such a purpose; that the establishments actually upon it, as well as those that may be expected to come there, should be considered as a whole—to form one institution—one great and comprehensive institution—having for its object (to use the Prince's own words, as quoted by the committee), 'to increase the means of industrial education, and extend the influence of science and art upon productive industry.' For such an institution some appropriate title, connected with the Prince's name, will doubtless hereafter be found; while, from its object, and still more from the benefits which the Queen hopes would follow the development of this idea, it would be fitly connected with the personal monument, and would itself form the most lasting and worthy memorial of the Prince's untiring and unselfish exertions for the general good."

A select *few* architects (comprising Messrs. Tite, Scott, Smirke, Hardwick, T. C. Donaldson, Barry, and others), are invited to submit designs—each to be paid, successful or not.

RAILWAY PROGRESS.

THE Directors of the Great Southern and Western Railway have entered into a contract with Mr. Bagnell for the construction of the works of the branch from Roscrea through Nenagh to Birdhill. The works are now being rapidly proceeded with. The new line of railway from Charleville to Limerick, promoted by an independent company, was opened for traffic on the 1st instant. Several station works requisite for the development and better carrying on of the traffic on the G. S. and W. Railway have been executed. The alterations and additions requisite at Charleville station to adapt it to a junction station, in connexion with the Cork and Limerick Direct Railway, were sufficiently advanced to admit of the opening of that line on the 1st instant. The resident engineer has proceeded with the formation of a second line of rails from Roscrea station to the junction of the Nenagh and Birdhill line, from which point the works are being carried on by the contractor, and under the superintendence of Mr. Lefanu. Mr. Lefanu, engineer to the Cork and Bandon Railway, reports that the new wrought iron top, to replace the original timber superstructure of the Innishannon viaduct, is almost complete; two of the girders are in their place, and the timber is now being removed to make room for the other two. The work has been very well executed, and does much credit to the Cork Steamship Company, your contractors. There has been no interruption to the traffic during the progress of the work. The works at Dundalk station, for the accommodation of the Irish North Western (late Dundalk and Enniskillen) Railway Company, have been completed in a proper and durable manner, without any interruption of the traffic. A new and convenient store-yard, with store-house, carpenter's workshop, and other accommodation, has been enclosed at Dundalk station.



COMPETITION DESIGN FOR PROPOSED NEW CARLISLE BRIDGE—SUBMITTED BY MESSRS. TURNER AND PAGE, C.E'S.

A BUILDER'S VISIT TO THE INTERNATIONAL EXHIBITION.*

(Conclusion.)

THE building stones are not characterized by much variety, and the new ones exhibited do not seem likely to produce any marked change in the practice of the building arts. The oolites of the centre of England are illustrated by Mr. Bentley (No. 22); but there are no indications as to their prices or their composition, although there can be no reason to question the enormous value of the resources which the development of the railway system has thus recently placed within reach of the metropolitan builder. I beg, indeed, seriously to call the attention of merchants and of practical men to this subject of the supply of stone to London from the Midland Counties; for it is one of the difficulties architects suffer under here, that they cannot reasonably employ stone, whilst a very little energy and skill would suffice to bring that material to market at nearly the same price as bricks. In the Exhibition, however, the most important of the new sources of supply seem to be those furnished by the Forest of Dean carboniferous formations; the old red sandstone formations near Arbroath; and perhaps, for some purposes, the jurassic series of Central France. There are several valuable collections of samples of the stones habitually used by our builders, especially those sent by Messrs. Freeman, Messrs. Trickett, and the Halifax Corporation; but they do not display much novelty, and our knowledge of the extent of the architectural resources of England, in this respect, is still very limited. There are several good collections of samples of our granites, and of our common marbles; and the French and Italian courts also contain some remarkable specimens of the latter material. I would especially call your attention to the Algerine onyx, the Pyrenean marbles, and those from Central Italy—and at the same time to the samples of the Parian and Pentelic marbles of Greece. It is, indeed, to me a mystery why the cold soapy white of the Carrara marbles should retain public favour, when the richer-toned Grecian marbles might be made so easily to compete with them.

The limes and cements in the English parts of the Exhibition do not contain anything new, or at least anything new and worthy of special notice. There are some skillful works illustrating the use of Portland cements in large concrete blocks, or as wall decorations, but we knew all this long ago; and the only novelty in the application of this class of materials is the one illustrated by Messrs. Coignet, Paris (1,258). Those gentlemen, in fact, obtain by the use of the common chalk lime mixed with sand and pounded brick-dust, in the proportions of 1 of lime to 10 of the other ingredients, a material which is capable of being moulded to any desired form, and which sets to some extent in 24 hours. There are in the Exhibition busts and architectural decorations made from this description of concrete; and there can be no reason why it should not be used regularly as a building material for houses, bridges, lock-chambers, sewers, &c. The principles on which the manufacture is conducted are—firstly, to slack the lime with barely the quantity of water requisite to cause it to fall to powder. The powder so obtained is mixed with about half the quantity of the extraneous matters, and reduced to a plastic state by the addition of a second small quantity of water (say about 40 per cent. in volume of the powdered lime); this mixture is passed through a pug-mill; and the mortar so obtained is again passed through the mill with the rest of the extraneous matters. The mortar leaving the second mill is then carefully rammed into the moulds in very thin layers; and in this manner artificial monoliths of any size required can be obtained. Messrs. Coignet have this year published a book on the subject, which I especially recommend to the attention of all those who are interested in the use, or in the science of limes and cements. In the Exhibition building, however, to continue our review, you will find samples of the Martins' and the Scotts' plasters. I could not discover the Keanes' or the Parian cements; and the Sorels' oxychloride of lime cement is also, I believe, absent, for I sought for it in vain. Indeed the whole of this class of materials is but indifferently represented at Kensington.

I may mention, in passing, that the various Welch and the Cornish slates are well represented here; but no new facts connected with the uses and properties of the material are elicited. Turning next to the building and furniture woods, you will find in the Colonial courts such an abundance of riches as almost to surpass imagination, and indeed to rouse anger at the neglect with which they have hitherto been treated. The woods of Jamaica, Demerara, Guiana, New Zealand, New South Wales, Nova Scotia, Canada, Columbia, &c., are often of singular beauty; their physical properties are all that can be desired, and the dimensions of the trees are often enormous, yet, to our shame be it said, they are hardly known, and never used, in England. Let me urge you to dwell long on this part of the Exhibition, for the impulsion to commercial enterprise in these matters greatly depends on you.

The metals exhibited certainly prove that the arts connected with them have made marvellous strides of late years, for the samples of wrought iron, hammered and rolled, are worthy of all admiration; the brass works are beautifully handled; the copper, tin, lead, aluminium, zinc, and some mixed metals, such as the Wettersted roofing metal, and the Muntz's sheeting, are all extremely remarkable. The use of graphite (black lead) for crucibles and melting pots, is opening up a new market for that peculiar form of iron; and the introduction of malachite as a material for architectural decoration is likely to increase the interest of builders in the study of mineralogy. The Bessemer's steel is perhaps the most striking novelty in this branch of the arts, and it seems likely to effect a complete revolution in some descriptions of constructions; for the production at a low price of a material possessing the peculiar conditions of elasticity to be found in steel must ultimately lead to the introduction of changes in the mode of applying metals. I would call your attention to the metal work exhibited by the Coalbrook Dale and the Carron Companies, by Messrs. Kennard, Skidmore, Baily, Benham, Hardman, and Hart; by the Sheffield and Birmingham makers collected in the hardware courts, and by the French bronze, zinc, and iron workers. The Belgians, Austrians, and Prussians, also exhibit some metal works very skillfully executed, and I am sorry to say designed in much better taste than the majority of the English works of the same description.

I may close this brief notice of some of the objects which seem to me the most worthy of your attention, by alluding to the glass works of Messrs. Osler, Defries, Pellatt, Dobson & Co. The designs seem to me often of questionable taste, and the glass is not to be compared in quality to the glass made by the late Mr. Blades; but the mechanical execution of some of the principal pieces is unexceptionable, and Dobson's celebrated tazza surpasses any specimen of engraved glass I ever saw. There is little to be seen in the way of paper-hangings; the leather cloth is curious, and in many situations would be, no doubt, of great value; the Kamptulicon is worthy of notice; but at last, after wading through all the samples, all the materials, and all the courts I have mentioned, I fear that you will still have but an incomplete notion of the contents of the marvellous collection.

8. The machinery used in the conversion of the raw materials to the purposes of building, is represented by numerous admirable lathes, planing, shaping, drilling, boring, and punching machines for iron; by steam-hammers, screw-cutting, nut-forming machines; by sawing, planing, moulding, tenoning, and rebating engines; by derricks, crabs, cranes, traversing platforms, hoisting apparatus, screw-jacks, &c. There can hardly be considered to be anything very novel in the arrangement of these various labour-saving engines, but your attention may well be directed to them; for it is so much in the interest, properly speaking, of the intelligent workman to diminish the amount of purely mechanical work, that he must watch with eager attention the progress of those mechanical tools which will leave his intellect free to exercise itself on the nobler branches of his calling. For my own part, I confess that I am disappointed at not seeing more builders' machinery in the Exhibition; but, of the little that is there, I especially recommend to your notice the tools sent by Messrs. P. Fairbairn, Whitworth, Bissell (of Wolverhampton), Forrest and Barr (of Glasgow), Hulse (of Manchester), Wm. Muir, Robert Morrison (of Newcastle), James Powis (of Blackfriars' Road, London), Robinson (of Rochdale), R. H. Thompson (of Woolwich), and Worsam (of Chelsea). The brick and pipe-making machinery exhibited by some of our leading potters, and by Messrs. Clayton and Bradley, and Craven, may also be referred to, accompanied by the observation that brickmaking by machinery rarely succeeds, unless when applied to stiff clays. I would also direct your attention to the turning lathes, and the carving machinery made by Messrs. Kennan (of Dublin), which contains some very ingenious movements, and certainly produces very remarkable reproductions of works of art at a small expense.

And now, what are the most efficient means for extracting all the lessons which you may expect to derive from this conglomeration of objects? If you had the means and the time for returning frequently to the Exhibition, the reply would be a very simple one, viz., to take one class at a time, and to examine every article separately. But this would involve at least ten visits, only to see the things directly connected with your own business; and he who only interests himself with his own pursuit is not likely ever to excel in it, so necessary is it to throw upon any art, or science, the reflex light derived from a general knowledge of the rest. For instance, you, as art-workmen, must study the collections of pictures, sculpture, water-colour and architectural drawings; and I would urge all who can afford it, to devote at least two days to their examination; so that, I believe, at least a dozen visits are needed to enable you to form a valuable opinion on the state of our pursuit as represented, in its present state, by this Exhibition. They who are not able to afford this amount of time would, I think, do well to content themselves with a cursory general view of the branches of art most directly useful to them; neglecting a the nonsense of coloured statuary, mosaic

* Lecture by G. R. Burnell, Esq., C.E., at Provident Institution, Conduit-street, London.

tables, copper game cocks, filter fountains, and other articles designed for the amusement of the wealthy, and the other merely accessory ornaments of the Exhibition. The South Court of the Eastern Annexe; the Western Annexe; the South Court, classes 10 and 12; and the French and the Colonial Courts, are the ones which contain the greatest number of objects likely to interest us; and the only counsel I would pretend to give you as to the mode of seeing them is to do so quietly and deliberately—not hurrying, but maturely examining all that is before you, and not attempting to pass from one subject until you have maturely examined the one you began with. Properly considered, these International Exhibitions are great industrial schools, and it is a great privilege to be able to assist at them. They furnish lessons which may be of inestimable value, if read aright, and with the proper humility of spirit, independence of judgment, and sustained attention required to make any course of instruction of value; but the independence of judgment is the great quality you must bring to bear on the examination of this collection, and I conclude by again repeating what I said in the early part of my lecture, viz.—“See, think, and judge for yourselves!” Recollect that the most important lessons you are likely to learn, with respect to art cultivation at least—whether as models or warnings—must be sought for in the productions of foreign countries, because every nation treats these questions from its own original point of view. Do not let any national prejudices, then, prevent you from recognising excellence wherever it may be found, or from learning all that others are capable of teaching us. Foreign workmen use very strange-looking tools, and they often put their work together in a very funny way; but depend on it that they have a feeling for art, and a facility of mechanical execution, we should do wisely to imitate; and I urge you, therefore, narrowly to examine the secret of this peculiar form of excellence. In fact, take all lessons—and think earnestly. The study of beauty is really the study, as Plato would say, the study of “the splendour of Truth”—and what nobler object than that can be placed before a reasonable man? So may you regard the great collection at South Kensington as furnishing the elements of your advance in artistic and moral worth, and of contributing to the glory of our dear country. If the Exhibition only yield you the pleasure which it has already yielded to the thousands of intelligent men who have already seen it, you will long recollect its occurrence. If I should have spared you any time, by facilitating your researches, I shall be more than repaid for any trouble I have taken this evening. Most sincerely do I wish that you had a better guide than I can be—a more willing one, however, you could not have had.

THE DESIGNS FOR NEW CARLISLE BRIDGE.*

No. of Design.	Name or Motto.	Address.	No. of Drawings in each Design.	Material.	Estimate.
12	Jno. Cochrane	London	3	Stone and Iron	£ 48,700

Single arch of severe curve, with rusticated spandrels, modillioned cornice, and perforated iron parapet. Grouped statuary is introduced over the abutments, and single figures on three intermediate pedestals.

13	T. Turner	Dublin, Glasgow, and Belfast.	2	Stone and Iron	—
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Three spans; two stone piers rising in same positions as present ones, but of different design from water line. (We presume that it is intended to take advantage of present foundation.) Girders horizontal, and roadway level; perforated pannelled parapet with civic and national emblems. The outside girders are noted “to be cast in cast iron” for architectural effect. A sketchy perspective shows triple lamps midway between piers, and an equestrian figure on centre of bridge, as also on each abutment.

14	Granite	—	3	Stone	48,000
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Single span, with rusticated radiating joints; balustraded parapet. Drawings very unpretentious.

15	“Pro Patria”	Westminster	4	Iron	47,460
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Single span; elliptic curve, flat but graceful; spandrels show city arms and scroll work; balustraded parapet, with a centre

piece surmounted by a figure; groups of statuary on abutments. Neat drawings, the perspective especially—though marked “rough sketch only”—being fairly handled; the Custom-house, however, is shown quite *too near* Sackville-street.

16	The sun shines bright on Carlisle wall	—	4	Iron	50,000
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Single span; segmental arch, with pannels following curve; latticed spandrels; corbelled course under cornice; light perforated parapet; central triple lamp; massive circular abutments, with superstructure of Byzantine character forming pedestal for statuary. Well executed drawings, but apparently not specially prepared for this competition.

17	W. M'Cormack	Birkenhead	1	Iron	46,000
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Single span; enormously heavy outside girders, with latticed spandrels, into which cross girders sustaining brick arches are framed; plain vertical railed parapet. Abutments have ill-shaped Doric columns, with semi-circular head springing from caps. Plain line drawings.

18	G. Farren	London	4	Iron	52,000
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Three spans, all elliptical; the centre much wider and flatter than the sides; spandrels elaborately traceried; parapet perforated; a statue is placed over each pier. On centre and on abutments are triple lamps. Drawings indifferent.

19	Walter Mahon	Manchester	4	Iron	40,000
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One span, elliptical; spandrels elaborate and filled in with peculiar but handsome ornamentation; modillioned cornice; parapet solid, except where trellised; pannels between frequent; piers are introduced, and have pleasing effect; centre piece surmounted by single lamp of characteristic design. Abutments are peculiarly treated, those portions against which the ribs thrust are surmounted by sitting figures in bronze, but there are wing piers connected by curves therewith, and on which equestrian figures are placed; a neat railing of diagonal pattern is shewn continued along the quay walls, which, if practicable in the expenditure, would certainly be a desideratum. A statue on circular pedestal is shewn on centre of bridge. The perspective, displaying this design, is charmingly executed, but not truthful as to surrounding features.

20	“Red, blue, and yellow Star”	—	4	Iron	47,750
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One span, truss girder construction; ugly arch, with latticed spandrels and *solid heavy* parapet, with pannels and piers. Strange conception. The author's “star” is certainly *not* in the ascendant. Poorly executed drawings.

21	F. W. Shields	London	3	Iron	32,320
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One span; segment arch, with intersecting circle tracery in spandrels, coloured light blue in the drawing; corbelled cornice; vertical parapet railing. The civic insignia are placed central between the cornice and soffit, and are highly emblazoned. On each abutment is carried up a tall octagonal pedestal with a standing figure; one of similar character also occupies the centre of the bridge. All these drawings are well executed, but the perspective especially is artistically treated, and *faithful* moreover.

22	Page & Turner	London & Dublin	5	Iron	48,000
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One span; segment arch of light and graceful curve; spandrels ornamented with shields encircling heraldic devices (displaying the national motto of “Erin go bragh,”) and with recumbent figures and Irish harps; corbelled course under cornice; continuous circular pattern in parapet, which is perforated and has no piers; city arms in centre between crown and soffit; triple and double lamps rise from pathway at centre and midway between abutments respectively. The abutments are French rusticated and vermiculated, and are surmounted by oblong pedestals (having breaks on

* This is shown on illustration of scroll pattern, owing to the defectiveness of the photograph furnished to our engraver.

flanks and semicircular ends with bold plinth and capping, and coloured marble pannels in die) sustaining equestrian figures. A convenient arrangement of steps from roadway to "a wharf" for pleasure boats is provided, and, in any case, will be much needed. These drawings are all very beautifully executed; the perspective especially being a work of high art unquestionably, and necessarily costly in production.

[As this design forms the subject of our present illustration, further particulars will be found in another column.]

23	Lanyon, Lynn, and	Dublin	5	Iron	44,800 A
24	Lanyon				36,300 B

Design A shows one span segment arch (water-way 120 feet), with escutcheons and tracery in spandrels, and quatrefoil continuous pannelled parapet; abutments with double piers, connected by a curved wing, and surmounted by pedestals for statuary. [The details and ornamentation shown on geometrical elevation do not correspond with those on the perspective.] An effectively tinted perspective, with point of view taken somewhere about water level, shows this design to advantage. The river, however, looks much narrower than in other drawings. The plan provides for a central and two side footpaths.

Design B is for a lattice bridge of same span, with horizontal main girders resting on cylinders, capped with pedestals and figures, and leaving gaps of about 8 feet waterway between quay walls at each side.

25	(Exegi caret) "Monumentum are perennius"	—	2	Iron	50,000
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Single span, with open spandrels, and vertical railed parapet. Plain line drawing. [The author would hardly be flattered by our congratulating him on the applicability of his motto, and assuring him that the design is truly "an enduring monument of brass."]

26	G. N. R.	London.	3	Iron	50,507
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Single span segment; clear water-way 130 feet; pannelled main ribs, with cross ribs; open pannelled spandrels; cornice and open perforated parapet, with circles enclosing intersecting triangles, and unbroken outline; boldly treated abutments, with pannelled pedestals, surmounted by equestrian figures diagonally placed at angles, and lions couchants; single lamps at either side of pedestals. The drawings are well executed, especially the perspective, which is warm and effective. The plan shows two trams for "heavy traffic," and one for "carts," central.

27	J. O. Hanlon	London	1	Iron	43,000
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Three spans of 46 feet; stone piers and iron superstructure display fantastic ornamentation.

28	R. & M.	—	5	Iron and granite respectively	—
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Four designs, viz., A for a three span elliptical arch stone structure (£48,000), with pannelled spandrels, and battlemented or pannelled parapet; figures over each pier. B, single span iron segment, with open pannelled spandrels and vertical railed parapet; statues on pedestals over abutments (£42,000). C, one span stone, with pannelled parapet (£48,000). D, three span stone, with pannelled or balustraded parapet (£48,000).

29	W.H.Coddington	Belfast	3	Stone and iron	42,200
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Three span skew ellipse (44 feet each); 5 feet from spring-tide level to crowns of arches; ornamental spandrels; quatrefoil pannelled parapet, with frequent breaks; tall, narrow pedestals carried up above each pier and abutment. The perspective is neatly coloured, though the artist has drawn a little in some points on his license. The character of this design is partly Gothic.

30	B. Bucknall	Stroud, Gloucester- shire	1	Iron	40,000
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Single span, segment arch; main ribs (or, in author's parlance, "beam arches in cells") are perforated with circles; spandrels filled in with Corinthian columns, above which spring segment arches; vertical parapet railing, with eight Gothic lamps at intervals; niched and canopied structures over abutments, surmounted by grotesque figures of dogs. Plain line drawing.

We should have noted that Mr. Leather, author of four designs, No. 8, displays a handsome model in glass case of a single span east iron bridge (120 feet), erected under his direction over the River Aire, at Crown Point, in Leeds; also lithographs of some others of his works. The width is about that of the Liffey at this point. The defective hanging of these drawings—complained of in our last—having been since remedied; we shall give particulars of the designs in our next.

We have received the following from the author of the designs marked "In Memoriam" (No. 12), described in our last Number:—

"I feel that the scantiness of my tracings, &c., are to blame for a slight inaccuracy which occurs in your very kind description of my design for New Carlisle Bridge, in last DUBLIN BUILDER. You interpret the steps shown beside angle towers as leading to a 'ferry.' As this would be a superfluity in immediate connection with a bridge, such a suggestion would betray want of consideration on the part of the designer.

"These steps were intended to serve a much more useful purpose, as leading to urinals, &c., which it is suggested might be placed in each campanile, as just in these positions such conveniences are very much required. The steps—only four or five—are introduced to make the entrance more private, to keep the top of the entrance opening as low as possible (so as not to interfere with the niche over), and to prevent any offensive drainage from the interior on to the footpath.

"The figure surmounting the up stream cut-water was intended for 'Anna Liffey.' I suppose the family likeness deceived you—unless Miss Liffey was anti-musical, in which case the mistake is mine. The sculpture in spandrels is to represent the agricultural produce, &c., brought by the river and its tributaries.

"On the down stream side Neptune was to occupy the seat of honour, with corresponding spandrel decorations, representing Commerce, &c., &c."

(To be completed in our next.)

CONG.†

Mr. Benjamin Lee Guinness, one of the most generous and patriotic of landlords, has purchased a large part of the property in and around Cong, with other estates also, and his improvements are constantly in progress. The Ashford estate, which had been in a miserable condition, with wretched cabins inhabited by a poor tenantry, is now undergoing rapid transformation. He has made roads at his own expense, built boundary walls of great length and durability, cleared away hovels, and erected in their room many neat cottages for small farmers and labourers, and houses two storeys high, costing from £120 to £150 each, for larger farmers. He has reclaimed much land, and planted trees largely. He has been for some time paying £70 a week for labour, and has given great relief during the winter by supplying coals and brushwood from his plantations to the necessitous. In short this spirited and benevolent capitalist is doing what the half dozen previous possessors of his estates failed to do, as the face of the country there testifies. Dr. Veitch, a landlord (on a much smaller scale) in that neighbourhood, seems also to have done much in improving the houses and farms of his tenants; to the labourers he lets a rood of land, and gives materials to those who will build new houses, and affords them work by which they may earn sufficient to repay themselves for what they expend in improvements.

He has totally changed the appearance of the habitations near Cross. If Mr. Guinness possessed the whole village of Cong it would soon become a neat and interesting place, with its fine old abbey adjoining the demesne of Mr. Guinness, and adjacent lakes with some of their numerous islands in view, and ranges of distant mountains towards the west and north. Wheat flourishes on the limestone soil here; and there are three corn mills with great water-power in constant work, but the wheat crop was deficient here last year, though those of oats and potatoes were pretty good.

FIRE CLAY GOODS.—An extensive establishment for the sale of every description of fire-clay goods, comprising sewerage pipes, white fronting bricks (a very superior article), vent or flue linings, flooring tiles, chimney tops, cattle troughs, &c., &c., has been opened at 56, North-wall, by Mr. Robert Brown of Paisley, the well-known manufacturer and proprietor for Scotland and Ireland of George Jennings's patent pipes. This is characteristic of Scotch enterprise, and an evidence that the articles in question are in extensive demand.

* The word "ferry" was inadvertently inserted for "wharf," which we thought in this case—as well as in some other of the drawings submitted—might have been the intention; however, as it was neither one nor the other, we with pleasure set the matter right by inserting this letter.—ED.

† From notes in the West of Ireland, by a correspondent of the *Gardener's Chronicle*.

SCIENTIFIC AND ARTISTIC NEWS.

It is said that a painter without arms, a Mr. Fels, in Belgium, is exciting general admiration by the excellence of his technical power, as shown in some of his works now at the exhibition of the Brussels Academy. He was born without arms, and paints with his feet.

On Tuesday, the 21st of October next, an examination will be held at Queen's College, Cork, for the matriculation of students in the Faculty of Arts, Medicine, and Law, and in the Departments of Civil Engineering and Agriculture.

A magnificent series of the monuments of Rome (says the *Athenæum*) is on view at No. 9 Conduit-street. They are photographed by Mr. Robert Macpherson, of that city; the subjects chosen with fine taste, and the pictures executed with skill and delicacy. From this exhibition the collector may obtain everything he wants of Rome, from the Coliseum to a cameo.

CHURCH WORKS.

The recently erected church of the Immaculate Conception at Clondalkin was solemnly dedicated on Sunday, the 12th inst. It is in the Early English style of architecture, and forms a portion of a group of buildings, comprising a presentation convent and schools. The plan comprises nave and aisles 126 x 53 feet, and separated by arcades of six lancet arches, chancel, choir, and a tower at north-east angle. The interior is lighted by 12 double opes in each aisle and clerestory, a four-light window, filled in with stained glass, over the high altar, and a great west window. The external dressings, &c. are of chiselled granite, and the walling of black stone. Expenditure on the church about £5,000, and a like sum for the convent and schools. Mr. Caldbeck was the architect.

A new tower is to be added to the Roman Catholic parish church of Maynooth. Mr. McCarthy, Architect.

The dedication of the new Roman Catholic Church of St. Patrick, at the Vale of Avoca ("where the fair waters meet") will take place on next Sunday; the Most Rev. Dr. Cullen celebrating the ceremony.

A new church is being built in connection with the Ardee work-house. Mr. J. Murray, of Dundalk, is the architect.

The tower and spire of the church of St. Laurence O'Toole is being completed, mainly through the exertions of the Rev. Mr. Farrington, P.P., and by subscription. Mr. John Burke is the architect, Messrs. Murphy and Son, the builders.

NEW PATENTS.

List of Letters Patent which passed the Great Seal on the 25th and 29th days of July, and 5th and 7th August, 1862; Messrs. Byrne and Lambert, agents, 4, Lower Ormond-quay, Dublin:—

W. Orr, for "Improvements in machinery or apparatus for the manufacture of sugar."

W. E. Gedge, for "Improvements in apparatus for extinguishing fire."

W. Palmer, for "Improvements in revolving fire arms."

A. C. Bamlett, for "Improvements in reaping and mowing machines."

P. H. Astley, for "Improvements in the construction of life-boats, applicable also to ships' boats, gun boats, and other vessels."

H. F. Broadwood, for "Improvements in the construction of pianofortes."

T. Horsley, jun., for "Improvements in breech-loading fire arms."

T. Dawson, for "Improved means for preventing the corroding of steam boilers."

M. A. F. Minnons, for "A new or improved means of arresting headstrong or runaway horses."

L. Chambart, for "An improved mode of and apparatus for raising the level of water in rivers, canals, and other water-courses."

R. A. Brooman, for "Improvements in stereoscope albums, books, and cases."

T. T. M'Comb, for "An improved fastening for securing cotton and other bales or packages."

LEGAL DECISIONS.

Forcible Entry into Ground.—*Galway Harbour Commissioners v. Yorks.*—Action on indictment, at Galway Record Court, for alleged forcible entry into a plot of ground, which plaintiffs claimed to be a part of their property. Traverser claimed it likewise, and produced witnesses. The learned judge thought the criminal charge could not be sustained, and directed acquittal.

In Bankruptcy.—*In re Madden.*—The bankrupt, who was a builder in Ballinasloe, came up on the 14th instant for final examination. The case had stood over to have some debts due to the estate realised and the schedule vouched. The final examination was passed.

Review.

Templeton's Practical Assistant. London: Lockwood and Co.

THIS little work is designed for the use of engineers, millwrights, machinists, and others engaged in mechanical pursuits, and comprises many useful tables and data—the author's practical experience, of more than thirty years, embodied in a concise form. The first chapters treat of ordinary arithmetical tables and definitions of signs; next are tables of the specific gravities of "various bodies"—the metals, building stones, and other materials (timber especially comprehensive), liquids, gases, weights of metals in various forms, their properties, alloys, &c., &c. The nature and peculiarities of steam and the steam-engine (locomotive and marine) are described in a couple of instructive and entertaining chapters with accessory tables; and towards the conclusion of the work are miscellaneous rules and examples, versed sines, tables relative to the circumferences and areas of circles, &c., &c. We warmly commend so useful a companion to the notice of such of the classes above named as have not yet made its acquaintance, and who cannot fail to profit thereby, by rendering their work lighter, and doing it with its aid more scientifically.

BUILDING MEMORANDA.

Sundry works are to be executed at the Anchorage, Rostrevor. Mr. William Hague, jun., architect.

The Corporation of Dublin are forwarding important pavement operations in Henry and Mary streets, by widening the pathway at either side considerably. In one respect these must be regarded as an improvement for offering increased facilities and comfort to pedestrians, but in another not so, as further circumscribing an already too narrow roadway for a crowded and rapidly growing thoroughfare.

A new range of first-class dwelling-houses is being erected opposite the railway terminus in Harcourt-street, and at the junction of Harcourt-road, on a portion of the fine garden attached to the residence of the Hon. and Rev. the Dean of St. Patrick's, which has been let for the purpose.

The large hall in course of erection at the intersection of Lower Merrion and Denzille streets is being proceeded with rapidly by the contractors, Messrs. Cockburn and Sons. It has a frontage to the former street of 81 feet 3 inches, with three entrance doorways in a central projection, surmounted by Corinthian columns and a pediment, and returns about 88 feet on the flank, which has two wings containing staircases. The hall, which is 77-6 by 65 feet in the clear, is approached through a piazza, and is arranged by meta\ columns into nave of 39-3 in width, and aisles with ranges of seats on incline. Over the aisles will be two tiers of galleries; and in the centre of the nave provision for ventilation is made through a superstructure formed on the roof. A good deal of the walling will be faced with Suffolk bricks, the decorative portions being in Portland stone. Mr. Alfred Jones is the architect.

QUINTIN MATSYS, THE SMITH AND PAINTER.—All who go to Antwerp look at the iron-work over the well near the Cathedral, and know it was wrought by Quintin Matsys; and every one who visits Windsor Castle gazes on the picture of "The Two Misers," which was painted by the same man. His name is a household word, though it is nearly 400 years since he was born. He was a locksmith by trade, or, as some now say, a watchmaker; lost his father when young, and had nothing but his own right hand wherewith to support his mother. Disease struck him down for a time, and that led him to the works of delicacy in his trade which have made him famous. The story that is told of his after life is well known. He loved the daughter of a painter in Antwerp, but the lady would marry none but a painter, certainly not a blacksmith, and so Matsys had to study hard, and afterwards to outpace a rival. Thus, as an inscription in Antwerp says, "Desire for a wife changed him from Mulciber to Apelles." True or false, that pretty story has helped his fame; so well disposed is the human mind to a little romance, so fully do all sympathise with the operations of that passion which has ever been, and ever will be, the great inciter to exertion, the great ruler, the great rewarder! The smith has always been "a mighty man in the village, and honoured of all men." See what an enduring fame for their town the hard-handed men of Nuremburg have achieved. In the first half of the sixteenth century, this city was the resort of all who desired to cultivate the arts.

"Quaint old town of toll and traffic, quaint old town of art and song,
Memories haunt thy pointed gables, like the rooks that round them throng."
LONGFELLOW.

—*Memorials of Workers.*

FIRE INSURANCE.—Mr. J. J. Lyons, Architect, 26 Lower Gardiner-street, is prepared to negotiate Fire Insurances on buildings and all kinds of property with that highly prosperous and liberal company, "The Royal."

The Dublin Builder.

VOL. IV.—No. 65.

ANNUAL RETROSPECT OF ENGINEERING AND ARCHITECTURE.

WE have before us a newly published work under this title (London: Lockwood and Co.) edited and originated by Mr. George R. Burnell, C.E., F.G.S., F.S.A., a gentleman whose name is familiar to our readers as the author of some valuable papers read at London professional societies, and transferred from time to time to the pages of this journal; some of these either in substance or in their integrity are, we may add, reproduced in this book. It is to be regretted that Mr. Burnell did not sooner enter on his task, but we believing in the proverb "better late than never," hail the event in 1862 as a desideratum, notwithstanding. The "*Retrospect*" is in one volume; Civil Engineering occupying the *first* division, Architecture the *second*, Military and Naval Engineering the *third* and *fourth* respectively; the *fifth* (and last) being devoted to miscellaneous matter, chiefly comprising legal decisions on contractors' questions, and brief notices of the principal professional works published during the year.

By its contents we are shown, that the year 1861 was memorable in the annals of progress, resulting in the complete development of many projects, the partial introduction of others—yet to become *faits accomplis*—and again in originating some which, though having the thread of their existence untimely cut by popular prejudice and other causes, returned to their source, possibly hereafter, to revivify. Amongst those latter, the history of the "street tramways" presents a sorry figure; but though the author regards the question from a palpably antagonistic point of view, he is bound to admit that, under certain circumstances, this system of locomotion "may yet be destined to render great advantage." While acquiescing in this belief, we feel bound to disclaim against the *honour* of any connexion with the "pressgang" to whom Mr. Burnell alludes.

The "Thames embankment" scheme, and the "Blackfriars'-bridge competition" form the subjects for separate chapters. The ultimatum, however, of the latter Committee being in favour of Mr. Page's design is erroneously set forth, it being now a matter of notoriety that Mr. Cubitt's has been adopted, and will be carried out; but at the time Mr. Burnell was preparing his book, the former was the "impression." It is a pity that, in so valuable a record as this, "impressions" should be published as *facts*.

Under the head "of harbours, docks, and canals," forming section 2, it is shown that the deleterious action exercised by the waters of the London docks, not only on the sheeting of the vessels resorting to them, but on the health of the crews thereof, and of the dock employees, led to an inquiry during the past year by the authorities, but not "until the manufacturers of the patent sheeting metal issued a circular, declining any longer to guarantee the durability of the article." Considering that this question is of vast general importance, affecting all commercial seaports as well as London, it is to be hoped that the investigation referred to may lead to results to be recorded in the volume of the *Retrospect* for 1862.

"The application of steam to canal navigation" has long been under the consideration of commercial and scientific men, but actual improvements recently made in that mode of transport in the United Kingdom, are stated by the author to be "few in number, of small practical value, and nipped in the bud by the indifference of public opinion." The Continent—especially Holland, Belgium, and North Western Germany—is pointed to as evidencing "progress" in the construction of canal craft, and "worthy of more careful study than Englishmen are generally disposed to admit." Steam tugs it seems "are now provided on the

Seine, between Rouen and Paris, carrying engines of 150 horse power and towing barges at the rate of 8 miles an hour." The better working of our canal system, which it is obvious has been largely damaged by railways, is surely a great commercial and social question worthy of grave consideration, and Mr. Burnell imparts much valuable information thereon, which ought to be read with avidity, especially by those having pecuniary interest in such establishments.

An interesting chapter on "the oil wells of America," together with particulars of discoveries and reports of scientific men thereon during 1861, forms an important portion of the section devoted to "*gas, water supply, and sewerage.*" Immediately following is given in full the report upon the "carburation of gas," by Mr. Haywood, to the City of London Commissioners of Sewers, with an appendix on same subject by Dr. Letheby, the eminent chemist. A joint report by those gentlemen to the same "honourable" body upon "the results of the application of charcoal to sewer ventilation," succeeds a paper by the author on "some recently executed deep wells and borings," reproduced from the *Society of Arts Journal*.

In the sections devoted to agricultural and mechanical engineering, the articles are peculiarly interesting; in the former, where referring to the "application of steam to agriculture," and in the latter to "the method of working adopted in the Mont Cenis tunnel," and to "gas power engines."

We should have thought that "telegraphic apparatus," and the science generally, would have properly come under the denomination of civil engineering, but they are here dignified with the distinct title of "telegraphic engineering." The effect of electricity on the posts and wires is noted by the relation of accidents that occurred during last year, and which, from their peculiarity, merit, to use the author's words, "the most serious attention of insurance companies, and perhaps equally of all house proprietors," referring of course to where erected on house tops or in the vicinity of inflammable property. With this closes the first division of the "*Retrospect.*"

Architecture hardly enjoys a position in this volume proportionate to her dignity, and the subjects under that head have mostly local reference, such as to "the style of the new Foreign Office," "the street architecture of London and Paris," the "dwellings of the artisans," the "removal of St. Thomas' Hospital," the "fall of Chichester Cathedral steeple," &c., &c. A description of "the new materials and processes connected with architecture," Bessemer's steel manufacture, Brassey's brick machinery, Ransome's artificial stone, &c., to wit, is added in a "practical" section, and the article on "the preservation of stone" is substantially a reproduction of that read formerly by Mr. Burnell, at the Institute of British Architects, and published at the time in this journal.

The fearful accident in High-street, Edinburgh, whereby, in November, 1861, nearly one hundred people were buried in the ruins of a fallen house, terminating fatally to the majority of them, together with a *resumé* of the "London fires" in that year, suggest valuable reflections on the defective construction of buildings, rendering such fatalities more matters of certainty than of casualty.

Divisions 3 and 4 of this book embrace certain questions of a more abstruse character than the foregoing; the more popular, such as "coast defences," "the fleet of the future," "Cole's cupola ships," &c., &c., being, however, very lucidly and fairly treated.

Taking this book, therefore, for all in all, it must be obvious that a vast amount of instructive and historical matters of scientific and artistic bearing are collected into a limited focus, and that the author has performed his task ably we are gratified in bearing unqualified testimony.

THE CITY HALL "APPROACH" COMPETITION.

THE decision of the Committee will be announced immediately, and the result, as we are informed (though not officially), is in favor of the author of "*Cui Bono*," the designs "*Hope*" and "*Alpha*" respectively being next in the order of merit. We presume that the Committee have taken *practicability* of execution into consideration, as well as the mere "*design*," as otherwise the competition would be a mockery. We may have occasion to refer to this again.

THE DESIGNS FOR NEW CARLISLE BRIDGE.*

No. of Design.	Name or Motto.	Address.	No. of Drawings in each Design.	Material.	Estimate.
31	—	—	2	Stone	under £50,000

This is a very futile attempt indeed at bridge designing, more like the first essay of a schoolboy than that of one presuming to compete with professors of an art. We suppress the author's name.

32	"Two Blue triangles intersecting"	Glasgow	3	Iron	47,500
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Three span elliptical arches nearly pointed, the springing taken at high water level, with clustered metal column piers and abutments resting on cylinders; gothic character of perpendicular period; spandrels and parapet perforated, the latter with outline broken, and lamp over each pier and abutment. Author shows taste in gothic design, without skill in bridge construction.

33	J. Berring	London	3	Iron	—
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One span ellipse; ornamental spandrels and solid parapet. Line drawings.

34	W. Wyatt	London	2	Iron (with statuary) (without do.)	50,000 35,000
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One span ellipse with radiating braces; springing above high water level; ornamental and perforated parapet (very low); masonry abutments with statuary. Plain drawings slightly tinted.

35	Kendall & Tollet	—	4	Iron & stone	50,000
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Three span segment arches (central wider); pannell faced main girders; spandrels and parapet with nondescript tracery; fantastic masonry piers and abutments; curved sweep at each end of latter enclosing a spacious platform and winding steps to wharf. A stiff and scratchy pencil perspective shows two obelisks on a central "causeway," and equestrian warriors on a line therewith at each end; the roadway is curved.

36	Graham & Cox	London	2	Iron and stone	37,000
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One span; sharp and graceful curve, with deep girders perforated with floriated crosses at intervals; parapet with alternate oblong and square compartments perforated also. On longitudinal section the abutments are seen pseudo arcaded Gothic. An odd conception throughout!

37	"Stella"	—	4	Iron	48,000
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One span; level girders and soffit, ornamental face; perforated parapet, with three triple lamps between—and figures on—abutments. The author's star is hardly in the ascendant here.

38	Dalrymple & Finlay	London	1	Iron	25,000
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Two designs. No. 1 for one span ellipse, No. 2 for segment; each with perforated spandrels and parapet, and red brick or red stone abutments, with or without statuary. Drawings rather more tasteful than some others.

39	R. Hassard	Dublin	—	Stone and iron and stone respectively	—
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Three designs, all most creditably executed, and showing practical knowledge of the subject. A is for a three span segment stone bridge with rusticated piers, abutments and voussoirs, console key stones, and bracketed cornice broken over each pier and abutment. On latter (in each design) stand bronze figures. Arches rise at highest level of tides (£35,000). B shows one

span wrought iron segment arch and superstructure; pannel faced girder; perforated spandrels and parapet; abutments of rusticated stone with bracketed cornice and pedestals (over £48,000). C is for three span combined stone and iron of similar contour of features to A, except that the arches are of iron; solid stone parapet weathered at top (£48,000). Roadway level in each case

40	C. M'Leod	Liverpool	6	Iron	36,000
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One span ellipse, with flat head and deep unrelieved horizontal space above; tracery (intended to be Gothic) in contracted spandrels; vertical railed parapet; octagon pannelled pedestals with massive corbels springing from a slender shaft on abutments; headway from high water springs not quite six feet. Eleven main girders sustain roadway. Drawings unpretentious.

41	Buaidh in an Scalnroig	—	2	Iron	24,444
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One span Gothic arch; fall from centre to ends of roadway; pannelled spandrels and perforated parapet; abutments shew columns of coloured marble.

42	W. Barrington	Limerick	5	Iron and stone respectively	—
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Three designs. A, one span iron segment arch with huge spandrels and deep crown unrelieved except by scratchy attempt at scroll work; perforated parapet with commonplace casting (£30,000). B, three span segment 44 feet wide, iron superstructure, stone piers and abutments; plain vertical railing in parapet; roadway level (£22,000). C, three arch semicircle within segment; balustraded parapet; massive masonry (£30,000).

43	J. Mackinnon	Belfast	4	Iron	40,000
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Two span beam and lattice construction; horizontal soffit; elaborately ornamented and pannelled face and parapet; tail waggon roofed Corinthian columned structure on each abutment. A central slender pier in bed of river. This is one of the odd ideas.

Relative to this series of notices the following are requested for insertion:—

"I received a copy of your journal of the 15th inst., giving a description of the several plans in connection with 'the Carlisle Bridge.' Being the author of the design No. 17, I find that it is marked as the production of Mr. M'Cormick." Now as Mr. M'Cormick has no part or share in the design—I merely giving my address at his office—and perhaps he would not feel at all flattered by your critique; I shall feel much obliged if you will say that I am the author in your next number, so that whatever merit or demerit belongs to it, may be placed on the proper shoulders.—WILLIAM DOHERTY, Dock Works, Contractor's office, Birkenhead."

[The name "W. M'Cormick, Birkenhead," is placed opposite No. 17 in the catalogue prepared by the committee, a document regarded by us as an authority. This fact exonerates us from misrepresentation.—ED.]

"In reference to your concise notice of the designs for the rebuilding of Carlisle Bridge, will you kindly permit us to offer a few supplementary remarks on our design, marked 64, Upper Sackville-street, offering as our apology for so doing, the fact, that the objects sought to be gained in a design, are not so patent to an ordinary observer as they are well known to its authors.

"In preparing it, we took especial care to keep in view the positive instructions of the committee, 'that the new bridge should be as nearly level as possible,' 'that it should be the whole width of Sackville-street,' 'that it should be built on stone abutments with iron carriageway and superstructure,' 'making provision for statutory to do honour to the memory of illustrious men' also as regarded the next clause 'that the committee leave it to the taste and judgment of engineers, whether the new bridge should be in one or three spans,' and in the clause but one succeeding 'that the waterway of 2,300 feet should not be diminished'

"Without hesitation we adopt the design of a bridge of 120 feet span, affording at the approaches circular sweeps with effective positions for eight statues at the angles; and further adopt a central pathway from Westmoreland-street, which, besides having the effect of preserving the public traffic in its existing course when approaching the bridge (thereby not depreciating the value of the existing buildings for business purposes,) presents at the same time suitable sites for four or more statues or monuments: in this respect, it is conceived, more fully meeting the expressed desires of the committee than in any other design which has been submitted to them.

"In point of construction, by the combined use of the two principles of the arch and horizontal girders, we have been enabled to keep the roadway of our bridge almost level, merely giving the fall necessitated by the slight difference in level between Westmoreland-street and Sackville-street, and we have also—what has been done in very few of the designs submitted—kept the springing of the arch above the level of spring tides, a construction as essential to the permanent stability of the structure as to its effective appearance at every state of the tide,

"As regards the comparative merits of a wrought iron and cast iron bridge we may refer to the recent instance of the substitution, by what we may fairly conceive competent authorities, of a wrought iron structure in preference to the previously premiated cast iron one proposed for Blackfriars bridge. We conceive it unnecessary to refer to the well-known and generally accepted character of cast iron as an undesirable material for work of this class, or to recapitulate the sudden and unexpected catastrophes which have occurred of late years through its use in some instances."

Owing to press of other matter we are unable (as intended) to complete this lengthened description in present number, but shall do so in our next.—ED.

Our wood-engraver being unable to complete in time the illustration of the second Design for Carlisle Bridge (stone structure), we are obliged to defer it until our next publication.

TO THE EXHIBITION!

By J. J. L.

Of "enquiring turn," and with some few pounds to spare,
A trip I resolved on, to see the "World's Fair;"
So to consult *Shade's* oracle speedily I went,
As to how best in transit my money could be spent.
For *twenty shillings* by it I soon did ascertain,
There and back I'd go, and so *twenty shillings* gain;
For that boon-depending individual, H. Marcus
(Quite the antidote of any modern Parcus),
For half the fare required by Railway Co.,
"Exhibition excursionists" will carry to and fro.
Blessing my stars, and blessing too his worthy head,
With traps in hand to "North Wall" I sped;
And oh! how joyous was the scene there presented,
Not as usual—of lamenting and lamented.
By *Telegraph*, too, forwarded were we to be,
A most unexpected, but most welcome, celerity.
At *One P.M.*† from sweet Dublin's shore we started,
Ladies, gents, and *snobs*, all jolly as we parted.
The moorings loosed, at "half-steam" we glide
On fair (?) Anna's bosom by the mid-day tide.
Hulloos! and echoes of halloos! now greet our ears,
And 'mongst the nervous, inspire some mighty fears;
By sons of Neptune, tho', we're told, "Ne'er mind,
'Tis but some 'late chaps' that we've left behind."
To stop the vessel fair ladies intercede—
Truly friends in need are friends indeed—
And with their request the Captain, kind, complying,
A boat-load of "chaps" down the river's sent flying.
What impudence to try the *Telegraph* to o'take!
But a pound's no joke, so the attempt they make;
And, faith, by bribing "Charon," and by pulling *might and main*,
Upon the *Telegraph* they positively do gain,
Which, when reached, a friendly rope let down
Soon brings to deck friends *Robinson, Jones, and Brown*.
"Full speed" henceforth is the order of the day,
Joy prevails, strangers friends become, and all are gay;
Brandy-flask, cigar-case, and fuses pass freely round,
And many an ancient care in libation's drowned.
'Long the bulwarks myriads of bright eyes are gazing
On the last of "home" and scenic beauties quite amazing;
Lads and lasses, and old folks too, familiarly talk;
Some sit on forms or baggage, while others walk.
How charming! says the nobby exquisite (*first class*),
With cigar in mouth, and optic 'dorned with spyglass;
Not bad value! quoth the beardless boy (*third class*),
Who with scanty purse goes a holiday to pass.
"The Pigeon House" a subject of discussion new becomes,
Its "Armstrongs" and "Whitworths," its "pounders" and its "bombs."
"The North Bull," too, its share of attention claims,
As the memorable battle-field of "Saxons and of Danes."
Swiftly—as true to name—the vessel glides along,
All join in mirth, and many court the muse of song;
With harmony undisturbed, and aught proceeding gaily,
The "Hill of Howth" is breasted, and with it "the Bailey."
The fatal spot on that headland's craggy side—
'Gainst which are wont to lash in fury, wind and tide—
Where the fair "Victoria" with living cargo foundered
Was pointed out—oh, horrible!—and "a.l men wondered;"
For still there lie, "neath the ripple and the wave,
Many old and young, brave and fair, in wat'ry grave.
Just hereabouts *first* was felt a gentle undulation—
In "swing-swing" fashion—a slight sensation!
Quite enough to show that *terra firma* was not there,
And 't' excite unused *voyageurs*—"creation's lords" and "fair."
The glassy surface *ruffled* has visibly become,
Inspiring dread to many, and apparent mirth to some;
Aloft, too, the blue sky has changed to ink black,
Reflected gloomily on the vessel's surgy track;
Now bowing obeisance to the majestic main,
Then riding o'er the waves, and righting herself again,
The ship speeds onward to her destination,
A decided adversary to procrastination.
On board, too, the scene's become most quickly changed,
The merry *dolful* look, while some seem quite deranged;
In torrents pours the rain, and vainly 'tis sought to shelter,
For cabin's crammed with folks all *heller-skeller*;
Pitching, rolling, tossing, more and more
Proceeds the ship, while "the sick" bestrew her floor;
Aboft, steward and stewards in requisition are,
And, *foreward*, drooping heads are raised by "jolly tar."
Swells above with the *swell* below communion make,
Though from their pouches many "nips" they take.

* The name of a remarkably swift steam-ship, the property of the London and North-Western Railway Company.

† On Tuesday, the 19th of August, 1862.

"Old sailors" say such apparatuses are most handy,
And that for *nausea* there's nought like "drop of brandy."
Some, rich as *Cresus*, would give all they're worth
If but possess they could, the luxury of "a berth!"
Others shun "close cabin," and balmy breezes seek,
Whose refreshing influences invigorate the weak;
But by all presented is a most painful scene,
Of hardy man succumb'd—of prostrate crinoline!
And thus it is, though scarcely yet we've reached "the Kish"—
Too far from "home," e'en now, for many a wish—
And for some sixty miles this voyage must yet pursue
With nautical distaste a sufficiency to imbue.
Minutely hence to picture would "ditto repeated" be—
For all symptoms now are lost of jocularity—
And naught prevails but sickness, weal, and woe;
The land's a friend lamented, and the sea's a deadly foe.
For five long hours 'cross angry main we sped
'Fore e'en we caught one longed-for glimpse of Holyhead.
And now *new comfort* we necessarily must face,
For suffering previous 'twas nothing to "the race."
Had *Eurus*, *Boreas*, *Zephyrus*, and *Septentrio* combined,
With one common lung to issue forth a mighty wind,
More perfect a conspiracy could not be.
Than that now encountered on this raging sea.
More dead than 'live the "human freight" was borne,
Tempestuous weather and dire misfortune to mourn;
But still, as near and nearer to land we steered,
Many an anxious mind and nervous heart were cheered.
Most gallantly our noble ship bestrode the wave;
Splash followed splash, and for safety all looked grave;
Copiously still, too, did *Pluvius* weep and piteous wail,
On steam alone depending, we dismissed the sail—
The trusty helm its master's mandate 'beyed,
While stem and stern, and keel and paddle swayed.
As 'gainst her sides the foaming sea would knock,
She stood suspended, and quivered with the shock;
But, still scudding on, and faithful keeping track,
The *Head* she neared, and fronted the *South Stack*.
To affrighted passengers 'twas surely consolation
To find themselves in sight of *telegraphic station*.
An hour full 'lapsed before arrived had we
In the harbour fine of *Isle of Anglesey*.
Embracing "mother earth," some time had we to wait
For the train to London at *twenty-four past eight*;
Comparatively hence our journey became like heaven,
And in "Chester ancient" were we at *four past eleven*;
Halting briefly, and "refreshing," on again we flew,
And in half an hour reached great junction Crewe.
For period long were we just here detained,
Till "mail" after "mail" the spacious station gained;
But fairly keeping time, and in her work most thrifty,
Our train sped along, and "Euston" made at *5.50*—
Where "excursionists," thick as bees at honeyed hive,
On platform frisky jumped, and all were quite *alive*—
The voyage rough and sleepless night all forgetting;
Travelling friends departed with a sad regretting,
And so, now finding them in excellent condition,
Au revoir say we—go see THE EXHIBITION!

IRISH PLAGUE SPOTS.

GLASTHULE, CO. DUBLIN.

THOUGH labouring under that discouragement which has ever been the prospect for the sanitary reformer, we enter, somewhat more especially than heretofore, upon the task of exposing existing evils in Ireland, with but little reasonable hope, however, that through our instrumentality much *practical* benefit shall result to the community; but should it prove otherwise, and should our "holding the mirror up to nature," as others have done ably and earnestly before us, effect even a partial improvement, and cause the removal of even a few blots from the many unfortunately now apparent, we shall have cause for at least some congratulation. The direction of our steps must necessarily be guided by circumstances. We shall visit in turn the haunts of fashion as well as of poverty—the rural districts and the over-crowded lanes and alleys of our cities and towns respectively; we shall point out, by indisputable facts, by illustration and statistical deductions, the demoralizing influences, the fatal effects, both to soul and body, of filth—of ill-constructed, badly-ventilated habitations; of want of *water*; of *impure* water; defective sewerage, &c., &c.

The readers of the two last articles on "Irish Social Statistics," published in this journal, will recollect the evidence presented to prove the fact, that west Dublin, or the poorer Dublin, has a rate of mortality so much as *three-fold* that of the eastern or wealthy section of the city, and that Ulster has a sanitary superiority over the other provinces to the extent that, if all Ireland were equally healthy with her, some 20,000 or 30,000 lives would be saved annually to the country; but as we desire our readers to note, *en parenthese*, Ulster is not superior to the average standard found prevailing in England, and in such towns or cities in Leinster or Munster as we can with any degree of accuracy trace out, the rate of mortality, we find, is in Dublin where the annual death-rate is in 1 in 32—a much worse state of the public health, than in the cities or towns corresponding to them in England, where 1 in 40 and 1 in 45. Therefore, as the average, we must premise with the observation which we would impress upon our readers, with all the force in our power, that whatever evils

sanitary reformers in London and throughout England had to describe thus, were less fatal in their results, less destructive of human life than the evils of a like denomination out of greater virulence and intensity now prevailing in Ireland.

The locality which we select, almost at random, to introduce our series, is the village of Glasthule, part of the township of Kingstown, in the county Dublin. Kingstown, as the favourite watering-place of the Dublin middle classes, and as the English packet station, is one of our wealthiest and most flourishing municipal towns. The population by last census is 11,800, with a poor law valuation of about £45,000, or very nearly £4 a head. The poor law valuation of Dublin is £550,000, with a population of 230,000; so that for purposes of improvement, Kingstown, although so much the smaller municipality, has in the value of its rateable property, as proportioned to its population, a very material and decided advantage over Dublin. If, then, we should find the poorer sections of this township neglected by its local authorities, the plea of poverty may not and cannot be set up as a bar to action.

Proceeding from Kingstown by the high road to Bullock and Dalkey, we pass through the small and unhealthy low-lying village of Glasthule. A very small stream flowing from the heights of Gleneageary forms the little valley in which the village is situated. The road crosses this stream by a bridge at a short distance from a cross road, called Adelaide-road. If we leave the road at this point (the bridge) and proceed upwards, we will pass through a dense hive of cabin, or rather wigwam population, having this Albert-road on our left.

The first object to arrest our attention, just under the bridge, is a small pool sunk a few inches in the stream; and if we wait but five minutes we will see at least a dozen cans sunk in this for water, for (as we are informed) *making tea*, for washing clothes, and for *drinking*, in the neighbouring houses. Let us note the characteristics of this important item in the food of these poor people. In the first place we observe that *all the filth from the cabins on the banks*, just over the spot where the cans are being dipped for water, is freely drained or thrown in; that the people in the cabins in the lane rising from the stream at right angles on our left, *have no other outlet for their excrements than into this stream*; that the line of cottages of a somewhat better class, a little higher up, are drained by a rudely-constructed sewer running into this unfortunate stream. Cabins, detached and semi-detached, *with a pig-sty positively overhanging the water*, and with *the filth from it dropping into it before our eyes*, surfeit us with their horrors, the few hundred yards upwards till we reach the bridge at Perrin's row. Standing on this bridge we observe the "row" is destitute of drainage of any kind—that *heaps of ordure are collected in front of the cabins*, and the superfluity from this *finds its way downwards to the water beneath us*. While at this spot, we enter into conversation with an intelligent citizen, and inquiring how the houses yonder on Albert-road are drained, we are informed that some six or seven of them have a branch drain running into what seems the common receptacle of the nuisance of the neighbourhood, "and, moreover," continues our Glasthule acquaintance, "that school-house, belonging to the Church Education Society, and having 150 boys and girls every day in the week—that school too is drained into that stream." Astonished at this latter statement, we requested to be conducted to the outlet of this drainage, and in a few minutes the spot was reached. There plainly visible was the branch sewer traceable from the privies in the rear of this school-house running into a stream where, but a few hundred yards lower down—aye, perhaps not a dozen yards—men, women, and children were drawing water to drink with; and this outrage was perpetrated by the people's instructors, without a word of remonstrance from the people's municipal representatives! But our temporary acquaintance would not suffer us to leave the spot till we had shewn, as a specimen of municipal management, which yet more forcibly illustrated what kind of protection for the public health and what kind of "improvement" the poor people of this village have to expect from their patriotic and enlightened Improvement (?) Commissioners. Just above the school-house the stream approaches to the edge of the Adelaide-road. In this road the Commissioners have sunk a large tank with a pump, to supply their watering-carts with water. The water here, comparatively pure, is diverted from the stream by a bar placed cross-wise, and the surplus only, after keeping the tank constantly full for the carts, finds its way downwards. By this contrivance the quantity of pure water to dilute the sewerage of the locality is reduced by about one-half; and this notable "improvement," for which the poor people are obliged to contribute, is just equal to a doubling of the quantity of sewerage sent down to literally poison, debilitate, and destroy them.

Quite so—to destroy human life. Glasthule was notorious for its frightful mortality during the last cholera visitation; and respecting its sanitary condition in ordinary years, although we

cannot, in the absence of a system of complete registration, determine the precise death-rate prevailing, we can, by asking the opinion on the matter of any physician practising in the locality assure ourselves that the mortality is greater than in the neighbouring and more healthy districts. Indeed, we have positive evidence that our suburban civic districts, of which Glasthule is a part, are greatly more unhealthy than the adjacent rural districts of the county Dublin. According to the Report of the Census Commissioners for '41 and '51, the mortality in the rural portion of the county Dublin was 1 in 50, but in the suburban civic portion 1 in 39 per annum. This difference, 1 in 11 on our suburban population of about 40,000, represents an excessive mortality of 210 per annum—210 lives destroyed annually by practices such as we observe at Glasthule—the turning a stream of pure water into an open sewer, and using this for drinking purposes; and in this instance certainly it is not so very difficult to devise means for preventing this enormous evil. A main sewer through Albert-road, deep enough to receive all the drainage of the houses and cabins, and the school-house on it, and between it and the stream, would be neither a very costly or extraordinary engineering work. Neither would the covering in of the little river and the forming of a little tank reservoir, with a pump, not for watering-carts, but for the inhabitants of the village. But, little as these would cost, they would cost something; and repeating here our parting advice to our Glasthule friend, we will say—*To force corporators to action you must bring home to them the consequences of their negligence and incompetency*, and this you can do only by the establishment of the English system of registration of deaths and the causes of death. Give Glasthule and like places in Ireland this record, this evidence of her unhealthy, neglected condition, and either her "Improvement Commissioners" must labour for her improvement, or else they will, by the voice of public opinion, be called upon to improve themselves out of the way, and make room for a Government engineer, or board, who will establish such drainage works, and effect such sanitary improvements as the science has pointed out as necessary for the public health of all, whether rich or poor; and in the case of Kingstown for such works there is an ample rateable property within its precincts to provide the means.

ALLEGED "DODGES" IN RE CARLISLE BRIDGE COMPETITION.

THE *Builder* (London) of the 80th ult. refers to "statements of objection relative to some of the proceedings in this matter," adding that "it does not find itself in a position to interfere." It further says—"The sixty and more designs submitted are under the consideration of the Chairman of the Board of Public Works and two other referees appointed by the Committee," and that "they are not likely to be influenced by the dodges pointed out." What these alleged dodges are we cannot divine. The integrity of the referees is admitted by our contemporary to be unimpeachable; and the Committee, in seeking the assistance of their better professional judgment, have quite exonerated themselves from the possible imputation of "dodging." The drawings are still hanging on the walls of the Institution in College-street, where the respective merits or demerits of each may be judged impartially by the referees, who, as we learn, have not yet inspected them. A shade of suspicion that we may be referred to by some cowardly correspondent of that journal, who shirks from the manly course of addressing ourselves on the question, as taking part in these dodges, just flashes across our mind, because, forsooth, to increase public interest in a most requisite municipal improvement, and thereby induce funds (which will hardly be forthcoming from the expected or any other quarter), we entered on the laborious task of wading through some two hundred drawings, attaching to each design (where at all noticeable) a compendium of its features, and including illustrations of two of the designs submitted—the one for an iron, the other for a stone bridge—without pronouncing any opinion thereon as to their superior claims for consideration before those of the other competitors. 'Tis but a simple act of justice to the authors of these designs to state that, further than "permission granted," they in no way encouraged their publication herein, the selection, as suitable subjects for illustration, resting with ourselves. We challenge any direct correspondence on the subject, which we shall deal with as its merits require.

IMPROVEMENT IN THE CONSTRUCTION OF METALLIC BEDSTEADS.—Our attention has been directed to a recently patented improvement by Messrs. Lambert, Brothers, of "the Grove" Ironworks, Wal-sall, Staffordshire, consisting of an improved box mount, enabling the pillars and top rails to be very much bolder and stronger than hitherto, and without additional cost, a desideratum said to be long felt to be wanted, for better class bedsteads.

* A third has been added in the person of Professor Downing, T.C.D.

THE OPENING OF THE ROYAL HIBERNIAN ACADEMY'S ART SCHOOLS.

WITH somewhat more than usual *eclat*—and we trust with enlarged prospects of success—this event of the academy session came off on the evening of the 25th ult. A few of the members and associates with their friends were present, but of them, and students too, it is matter for regret that the attendance was not more numerous; as it behoves all who wish this worthy Institution well, to muster in goodly force round its banner. Amongst those, the prestige of whose presence lent importance to the occasion, was the Lord Chancellor Brady, who, whether in or out of judicial office, has shewn a marked desire to contribute to the advancement of national art and artists.

Shortly after eight o'clock, p.m., the chair was taken by the president, Mr. Catterson Smith, who introduced Mr. Henry MacManus (professor of painting to the Academy), and on whom the duty of delivering the inaugural lecture devolved. This we print on another page. After the professor had concluded, the Lord Chancellor rose and spoke as follows:—

Mr. President and Gentlemen—This is, I believe, the first occasion on which a meeting has been held to inaugurate the session of this Academy, and on which an address has been delivered by any of your professors in reference to the objects of the institution. I think I may congratulate the Academy upon this commencement of what in its results may turn out to be a very admirable arrangement in reference to the culture of the fine arts in Ireland. I have come here to-night on the invitation of the president, whom I esteem so highly, and I gladly availed myself of his invitation, because I take a deep interest in the progress of this Academy. I did not come prepared to offer any observations on this occasion, nevertheless I will venture to make a few remarks on the subject which brought us together this evening. I think that the professor of painting, who has just addressed you, has made some very useful observations. He has said one thing which is of the utmost importance to every young man, and that is, never to defer his studies until he ceases to be a young man. It is in the time of youth, in the time when the eye is clear, and the mind is clear, and all the faculties of the body are in full and vigorous action, and everything is energetic about the man that he should devote himself to study, whether of the arts or of the sciences. I congratulate this body on the initiation of this course of lectures; and I do hope that although Mr. MacManus has been rather brief on the present occasion, I may live to hear him and the other professors of the Academy give us at fuller length that information about the arts which he and they are, I am sure, so competent to deliver. I look forward to a rich display of intelligence and of thought in everything relating to the various branches of the fine arts from the professors of this institution. They and the students will remember the valuable volumes which have emanated from the Academy of London. They will remember the lectures of that man of great power and of great genius—perhaps at times not well-directed, but still great—the eminent Irishman, James Barry. They have read, I am sure, the works of that distinguished ornament of the British school—the graceful, truthful, accomplished Reynolds. They will hear, I trust, in future days lectures delivered in this room equal to the discourses of that eminent genius Fuseli—sometimes extravagant, often sublime, always instructive. I might enumerate others—the truthful Opie, the elegant Bowney, the graceful and versatile Gainsborough, and other great men, who by their lectures and their works have illustrated their art, and may be held forth as bright and instructive examples to the youthful generation of artists. I do trust that from this small beginning, great things will result; and that the youthful artists of Ireland will be encouraged and aided to take a high place in the several branches of their profession, not alone in this country but in the world. They have in this room beautiful examples to direct their taste. They have occasional exhibitions, which bring before their eyes the productions of artists from all parts of the world; and in my opinion it is of great advantage that these exhibitions are not confined to the works of native artists alone, but that they bring together the works of artists from England and the Continent, which are calculated to show our young artists what is going on elsewhere, and teach them what they should aspire to. We have thus some materials for working on. We have a few things in this metropolis worthy of their attention. I think I may say that in the course of this year we will have something in the shape of a National Gallery in Ireland, which will present to the pupils in art a great mass of materials admirably calculated to forward their studies in the various branches of sculpture and painting, which that institution is intended to illustrate. I am sorry to say that we have not succeeded in eliciting that amount of pecuniary support which would have enabled us to bring here works such as those that adorn the Louvre and the galleries of Berlin, Dresden, and other places, which have revelled in the richness of

bygone times; but our collection, formed as it has been with limited means, and under unfavourable circumstances, contains specimens which I think are not unworthy of your consideration, and which will be calculated to render great assistance to the art student. As I have already said, I trust we shall live to see great things emanating from this institution. Every man in this country who takes an interest in the progress of the arts ought to give it his hearty support. I hope what has been said by Mr. MacManus will have its due weight with the students. The rewards offered for proficiency in the several branches will doubtless excite emulation and competition; but the students must remember that, unless they love art for the sake of art, medals, rewards, and honours will be all thrown away. The student cannot succeed if he has not within him a pure love for his art, and a deep sense of the high privilege which he will enjoy in becoming a great artist—a feeling which is the foundation of excellence, not in art alone, but in every occupation in which the intellect and the energies of man are engaged. The Lord Chancellor concluded by proposing a vote of thanks to Professor MacManus.

Mr. E. Hayes having seconded the motion in appropriate terms, the president in putting it to the assembly said, his lordship had alluded to the benefit which students derived from public exhibitions. He fully concurred in that opinion, and might cite in corroboration of it a letter written by Sir Thomas Lawrence, and published in the life of that eminent painter, in which he states that Sir Joshua Reynolds was greatly benefited by the exhibition of his works in the Academy. Sir Thomas also said that he himself had been elevated by means of exhibitions from mediocrity and neglect to the honorable position which he attained. There could be no doubt that it was highly useful to the student to place himself in competition with his superiors. It might be exceedingly depressing, perhaps hurtful, to his pride and his ambition, but he was sure to derive much advantage by comparing himself with those men who had advanced in art. The building in which they were then assembled was the liberal donation of the late Mr. Francis Johnston, who gave it for the furtherance of art in Ireland. Sir Thomas Lawrence took much interest in the formation of the Royal Hibernian Academy, and rendered them valuable assistance in obtaining a charter, and subsequently sent several of his works for exhibition here. The Academy commenced its career under very bright auspices. It received from Mr. Haughton a valuable donation of books, principally concerning the fine arts, and subsequently it obtained gifts of statues and pictures. Nevertheless, it had not altogether realised the best wishes of those who had so liberally supported it. This had arisen, not from the want of taste for art, but from the want of funds, and from the fact that our distinguished men found honours and emoluments in another land which they could not obtain at home. The names of Mulready, MacIsaac, M'Dowell, Foley, Danby, Barton, Rothwell, and others, proved that Ireland could produce first-rate artistic genius. Had these eminent men continued to be attached to the Academy—had they been satisfied with its honours and exhibited their works on its walls, the Irish School of Art would be second to none in the world. Ireland was prolific in genius, and Irish art was being illustrated at the present day by works of the greatest possible power, but, as he had already said, that genius was displayed in another land. He trusted, however, that the rising artists who were connected with this Academy would do much to elevate its position. If they progressed as they had begun, if they continued to adorn those walls with a steadfast desire to enhance the interests of that institution and their own, he saw no reason why the Academy might not yet assume a high character and position as a school of art. The president then put the vote of thanks to Professor MacManus, which was adopted. Professor MacManus briefly returned thanks. He said he had studied on that occasion to compress his introductory lecture within the smallest possible compass, but he expected to have ample opportunities in future of dwelling more fully on the various questions involved in the study of art.

The proceedings then terminated.

KINGSTOWN COMMISSIONERS.

A SPECIAL meeting of the Town Commissioners of Kingstown was held on the 11th ult., to take into consideration the reply of the Lords of the Treasury to an application for a site for a Town Hall. Mr. James Barrett, J.P., in the Chair.

It appeared that in May last an application was made by the Town Commissioners of Kingstown, for a grant of a piece of ground opposite the railway terminus, to the Harbour Commissioners, but the latter body stated that they had no power to grant the site, and informed the Town Commissioners that the application should be made to the Lords of the Treasury. Mr. Frederick Peel replied, on the part of the Lords of the Treasury, that the power to make the required grant did not lie with their lordships. After considerable discussion the Town Commissioners agreed to a second form of application, which the secretary was directed to forward, offering a fair and reasonable rent for such ground as the Lords of the Treasury might think proper to grant for the purpose of building a Town Hall.

THE NEW COLLEGE OF PHYSICIANS.

In our numbers for June 1st and 15th respectively, we gave views of the exterior and the interior of this building, as intended to be erected from the approved design by Mr. Murray, architect; and in noting the result of the competition, we referred to the committee having awarded a premium of *fifty pounds* to Mr. John M'Curdy, architect, for the designs submitted by him. Our readers having had the advantage of seeing the adopted design illustrated, we now include a lithograph of the elevation as proposed by the premiated one, and executed by Mr. Hopkins, of 89, Great Brunswick-st. Quoting the substance of our description of this design when exhibited in July last (with those by five other architects), at Sir Patrick Dun's Hospital, we remark that Mr. M'Curdy's elevation is more elaborate, and the general arrangements more extensive and costly than in that to be carried out. But the drawings—seven sheets in number—are very creditable, and represent such an amount of labour as the premium awarded will hardly do more than moderately requite. The front is a composition of Roman Doric and Corinthian, though the ornamentation and fenestral arrangements are Italian and Venetian. A projecting portico with three arch-headed opens highly rusticated, and a Corinthian columned superstructure above, a continuous triglyphed entablature for the basement, and a highly-ornamental do. and balustraded parapet above, would seem in the description—were it not for our preliminary remark—to suggest a similarity in design to that approved. But it is not so, for the elaborateness of its ornamentation contributes a character of Palatial architecture which the other has not.

A NEW TOWN HALL FOR DERRY.

In our notice of this city some months ago, we urged that consideration should be given to the state of the Town Hall and its unsuitability. We are glad to find that a move is now being made in the matter; and we take the following from a recent number of the *Guardian* :—

"It has long been complained of that there is not in this city at present a hall sufficiently spacious for holding public meetings and assemblies in. A scheme has been suggested by one of our most respectable fellow-citizens, which seems to be feasible, and which would remove this cause of complaint. He proposes that the Hon. the Irish Society should be applied to for their reversionary interest in the two blocks of buildings in Shipquay-place, opposite the City Wall, between Shipquay-gate and Mr. M'Corkell's, and that a company should be formed who would buy up the interests of the occupying tenants, and erect, instead of the existing premises, a building that would combine a Public Hall, Post Office, Inland Revenue Office, Stamp Office, and Ballast Office. There are only about fifteen years of the term for which the tenements in question are held to run, and it is estimated that the sum of £10,000 would suffice to buy up existing interests and to build up the new edifice. Of course it would be necessary to ascertain whether the Government would be willing to rent some of the offices we have mentioned, but they ought not to hesitate about doing so, the situation being so central and convenient for business purposes, and it would be the same thing to them whether they paid rent for offices when placed in juxta-position, or for the same offices scattered through the town, and found with difficulty by strangers. We hope the Society will give the suggestion their favourable consideration."

THE WEBB TESTIMONIAL.

We announced in a recent number of this journal that a committee, composed of the friends and admirers of Mr. Henry Webb, the lessee of the Queen's Royal Theatre, in this city, were engaged in maturing arrangements to present him with a testimonial, and that a handsome service of plate had been secured for the purpose at the establishment of Messrs. Waterhouse and Co., of Dame-street. The event of presentation came off on last Wednesday night at Jude's Hotel, after the performances at the Theatre were over, several of the artistes engaged thereat attending, and the acceptable auxiliary of an excellently-served supper accompanying. Mr. Cunningham presided, and after the usual loyal toasts, that of the guest of the evening was given in the following terms:—The health of "Henry Webb, long life and prosperity to him, and may he long enjoy his office of caterer for the amusement of the city of Dublin."

The toast was received with all the honours.

Mr. George R. Grice, Honorary Secretary to the Testimonial Committee, read the following address:—

"TO HENRY SKERRY WEBB, ESQ., LESSEE QUEEN'S ROYAL THEATRE, DUBLIN.

"We, the undersigned, numbering a few of your friends and admirers, being desirous to convey to you an expression of the regard and esteem in which you are held, feel the present occasion (the commencement of your ninth year of management) a most fitting opportunity. We are most anxious to bear testimony to your well-known urbanity of manner and upright conduct, both in private as a friend and gentleman, and in business transactions as a manager (some amongst us having occasion to meet you in the latter capacity), and to express a hope that prosperity in business, and the enjoyment of the real blessing of this life—good health—may enable you to maintain your present position for many, many years. In conclusion, we request your acceptance of the accompanying service of plate as a small *souvenir* of our respect and appreciation.

You shall not be
The grave of your deserving
'Twere a concealment
Worse than a theft, no less than a transudement,
To hide your doings."

—*Coriolanus*, Act 1, sc. 9."

The Chairman said—After hearing that address read, I have the great honour of presenting to our worthy guest this service of plate on behalf of the subscribers to the testimonial fund.

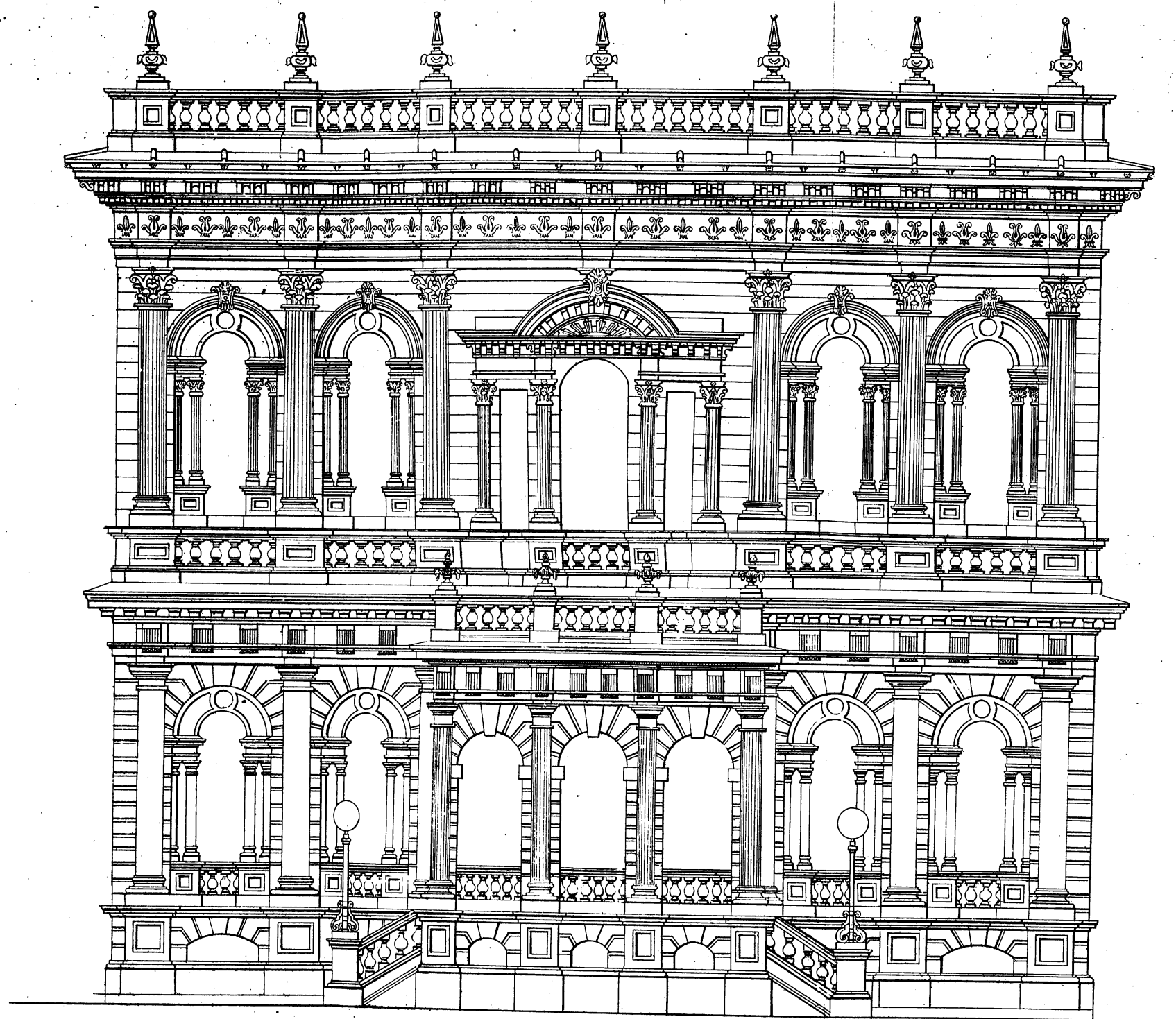
Mr. Webb replied at some length, expressing his gratification at the address and testimonial, in receiving which he felt somewhat embarrassed; and remarking with pride, that amongst the subscribers to the testimonial, he found the names of all but one of the managers now living, under whom he had served during a professional career extending over thirty years. Associated with them he found a number of his most esteemed patrons as well as nearly all his personal friends and acquaintances, and the gentlemen who had so generously devoted their time and their energies to the furtherance of charitable objects—namely, the histrionic amateurs of Dublin. He hoped his future career, however short or long, however humble or prosperous, would prove his gratitude for the kindness which had been extended to him, making him more considerate for the public, and more ready to serve them; more considerate for the feelings of his brother actors, and more ready to extend the hand of fellowship to them; more considerate for the poor, and more ready to assist them; to aid the unfortunate, and to wipe from the pallid cheek of poverty the tear of sorrow.

[We feel much pleasure in re-echoing the sentiments conveyed in the address, and in adding that in every relation of life Mr. Henry Webb is entitled to the highest appreciation of his merits—an appreciation to which, in a professional and managerial capacity, we should more frequently give expression than we can do under existing circumstances, which, being before adverted to, we will not here particularise.]

DANGEROUS EXHIBITIONS.

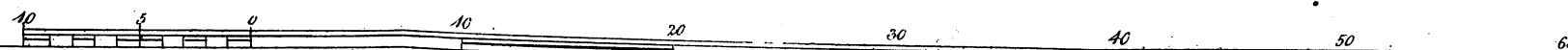
We are convinced that the time has fully arrived when the authorities should interpose to prevent the exhibitions of *daring feats* which are so frequently being carried out in places of public amusement, to the imminent danger of the lives of the performers, and to the complete demoralisation of those classes of society who are given to morbid tastes. Notwithstanding the many fearful examples of "wild beast tamers" who have fallen victims to their inculcation of docility, still we see numerous parties following the same revolting occupation, thrusting their heads into lions' mouths, not knowing that the latter may ever be withdrawn to hear the plaudits of the spectators.

Again the speculating manager is permitted to exhibit his "unrivalled collection" in cages through public streets followed by the rabble in thousands, hallooing, pelting, and otherwise exciting the latent savage nature of the animals, separated from humanity by only a few bars, not unfrequently questionably frail. Was not the recent occurrence at Kingstown, whereby one of the crowd, who incautiously approaching a cage exhibited in this way was embraced by a lion, and with extreme difficulty and risk to the keeper's life withdrawn from the savage grasp, fearfully lacerated; sufficient to serve as a lesson? When shall we have an end to "flying men?" not even we suppose when some half dozen of them will have broken their necks. Will the Blondinism mania now receive a check in the fearful occurrence just recorded at Highbury Barn gardens, where the "lady Blondin" fell head foremost from the rope at an altitude of 60 or 70 feet amidst the shrieks of a multitude who had the misfortune to witness the precipitation? We except ballooning experiments or others with scientific tendencies, but in those above referred to there is no such element; none but one as revolting to humanity as the gladiatorial exhibitions of Ancient Rome, or the bull-fighting of modern Spain; all barbarities in the superlative degree, which should not be tolerated by the christian authorities of a christian kingdom.



DESIGN FOR THE COLLEGE OF PHYSICIANS, DUBLIN.

For which the £ 50. Premium was awarded to M^r. John M^c. Gurdy, Architect.



J. HOPKINS LITH, 39, CT BRUNSWICK ST

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ON THE LAWS OF NATURE'S VENTILATION, AND THEIR APPLICATION IN CONSTRUCTION.*

VENTILATION has for its object the renewal of the air in dwellings and other edifices used by man; in the carriages of various kinds he employs for locomotion; and in buildings occupied by such of the useful animals as horses, cattle, sheep, and dogs;—in other words, to replace air that is deteriorated by air which is pure. If nature maintains, as we know is the case, a constant circulation of the water in the sea, that it do not become stagnant and so unwholesome to the living creatures therein; it is comforting to know that provision has likewise been made to maintain the life-giving air—much more liable to corruption than water—in unceasing motion.

But what are these ordinances of nature which govern the atmosphere in the performance of its grand and multiform offices? An answer, were I to attempt it, would demand too much of my space; and I therefore refer the reader for this information to a remarkable work, entitled "The Physical Geography of the Sea, and its Meteorology," by Captain Maury, in which he will find this matter fully discussed. From this volume I transcribe the following passages, as bearing on the subject of my paper:—"There is no employment more ennobling to man and his intellect than to trace the evidences of design and purpose which are visible in many parts of the creation. Hence, to the right-minded mariner, and to him who studies the physical relations of earth, sea, and air, the atmosphere is something more than a shoreless ocean at the bottom of which he creeps along. It is an envelope or covering for the distribution of light and heat over the surface of the earth: it is a sewer into which, with every breath we draw, we cast vast quantities of dead animal matter: it is a laboratory for purification, in which that matter is recombined and wrought again into wholesome and healthful shapes: it is a machine for pumping up all the rivers from the sea, and for conveying the water from the ocean to their sources in the mountains: it is an inexhaustible magazine, marvellously stored." . . . "Upon the proper adjustments of the dynamical forces which keep up these ceaseless movements of the atmosphere, the life of organic nature depends. If the air that is breathed were not taken away and renewed, warm-blooded life would cease:—if carbon, and oxygen, and hydrogen, and water were not in due quantities dispensed by the restless air to the flora of the earth, all vegetation would perish for lack of food. That our planet may be liable to no such calamity, power has been given to the wayward wind, as it 'bloweth where it listeth,' to bring down from the pure blue sky fresh supplies of life-giving air wherever it is wanted; and to catch up from the earth, wherever it may be found, that which has become stale; to force it up, there to be deflagrated among the clouds, purified and renovated by processes known only to Him whose ministers they are. The slightest change in the purity of the atmosphere, though it may be too slight for recognition by chemical analysis in the laboratory, is sure to be detected by its effects upon the nicer chemistry of the human system; for it is known to be productive of disease and death. No chemical tests are sensitive enough to tell us what those changes are; but experience has taught us the necessity of ventilation in our buildings, of circulation through our groves. The cry, in cities, for fresh air from the mountains or the sea, reminds us continually of the life-giving virtues of circulation. Experience teaches that all air, when pent up and deprived of circulation, becomes impure and poisonous."

The horizontal movement of the atmosphere varies from nothing to upwards of 100 miles an hour, and is measured in our observatories and other places by a simple instrument called the self-registering anemometer. As early as the middle of last century the celebrated Smeaton, in his "Enquiry" concerning the natural powers of water and wind to turn mills, informs us that the air's movement of one mile an hour is hardly perceptible to the feeling; that from 4 to 5 miles is a gentle and pleasant wind; from 10 to 15 miles, a pleasant brisk gale; from 20 to 25 miles, the breeze is strong; from 30 to 35 miles, a high wind; 40 miles is very high, and 50 miles is a storm.

The anemometer teaches us that this horizontal motion of the air varies in a locality at different seasons of the year, and also very considerably in different parts of the same country. Thus, while the atmosphere's mean horizontal motion at Liverpool, for 1860, was, in the first quarter of the year, 400 miles a day, or 16 miles per hour, it was only 290 miles per day in the fourth quarter; the average daily movement for the year being 327 miles, or 13 miles an hour. With this let us compare what the registrar-general says of London, in his annual report for 1857:—"The peculiar meteorological phenomena of the year," he writes, "are the high temperature and the slowness of the wind's movements. The temperature was 2 degrees above the average of the preceding 17 years: the wind, instead of moving at the average rate of 110 miles a day, passed over London at the rate of 81 miles daily during the fifty-two weeks." Here, while the wind's mean daily movement at London is said to be only 110 miles, or about 4½ miles an hour; at Liverpool, on the average of the three years ending with 1860, it is no less than 321 miles a

day, or 13 miles an hour,—a difference greater than one would expect, and the cause of which I am unable to explain.

The fact being thus established that the vital air is in ceaseless motion,—ever seeking to displace air that is stagnant, and so more or less effete, by pure air,—we have next to enquire from what quarters, or towards what points of the compass, the air stream mostly flows; because a knowledge of this will guide us in some very important particulars in planning buildings with a view to their ventilation, especially in reference to the choice of the most suitable aspect for the front elevation, for the entrance-door, for the windows, kitchens, for the latrines, and for cesspools, when the latter cannot be dispensed with. In Manchester the direction of the atmospheric movement, during the year, I find to be as follows—(the calculation is on the average of five years):—Winds from the south-east, south, south-west, west, and north-west, prevail 279 days; leaving for other winds, namely, from the north, north-east, and east, 84 days only. Hence, with a map of Manchester and these figures, one can readily find the windward and the lee sides, and so ascertain the movement of the smoke-cloud towards different quarters of the city and neighbourhood. London has its westerly quarter, where the aristocracy dwell, because that is the windward side of the metropolis; and the same remark is applicable to all our large cities, in every one of which the north eastern quarter, being the lee side, is, generally speaking, occupied by the meanest description of dwellings. Indeed, I have always observed that houses of the better class, erected on the east and north-east sides of our large towns, gradually lessen in value; and are, in course of time, abandoned by the wealthy inhabitants. A history of change, in the rank of the occupiers of dwellings on the lee side of our old cities, would afford curious revelations of mutation. I well remember, when a student in Glasgow, visiting pauper patients in tenements on the eastern side of the city, understood to have been occupied at one time by families of the aristocracy.

Having briefly stated what I mean by the laws of nature's ventilation, I now proceed to show the application of these laws in the construction of dwellings and other edifices; and first of cottages.

A properly-constructed cottage is, in a sense, alike necessary to the health and morals of a family.

Single and Double Honeycombs.—In all our large towns thousands of families occupy cottages in which there is only one room to live in; and one where all the members of a family, of both sexes, pass the night. The name honeycomb is from the rooms resembling in certain respects the cells of the bee,—that is, placed back to back against a common wall. In Manchester, Salford, Sheffield, and Liverpool—in the latter city more especially—the double honeycombs are very numerous; whilst in Leicester I found, when there a few years ago, that many of the dwellings of the poor are single honeycombs; that is, each row of these cottages rest against a wall, as if built against the face of a rock. Of course the apartments in the single and double honeycombs alike do not admit of nature's ventilation. No cottage ought to have less than four rooms—two on the ground and two above,—with windows behind corresponding to those in front; and the entrance and back doors should be face to face, to secure a frequent renewal of the air.

A Pair of Semi-detached Houses.—There are a number of residences of this description in and around our city, mostly of large size, and yielding a high rent. I need only to direct attention, first to the ground-plan, and then to the chamber-plan, to satisfy any person of intelligence that both are faulty. In the first place, the entrance-door and the porch do not conduct *directly* to the hall, while the hall itself ends at the median wall; in consequence of which the arrangement of all the apartments tends to impede a proper circulation of the atmosphere. In the chamber storey, again, there are the same impediments to ventilation; whilst, to increase the evil, the latrines have a central position at the extremity of the landing, against the before mentioned median wall, and are manifestly an unwholesome nuisance.

Well-planned Small House.—In the ground-plan, the entrance and the back doors are placed so as to favour through ventilation; whilst, in the chamber storey, the water-closet is projected outside, behind the posterior wall; and is ventilated by two windows, one on either side, facing each other, thus securing through ventilation at a right angle with the entrance door.

Townhalls.—Manchester Townhall, King-street, furnishes a good illustration of an important public building with ample air space, and yet very defective ventilation. You step into the lobby; pass on to the staircase, which is lighted principally from the dome; and then you see before you the lofty posterior wall, unpierced by door or window. Having mounted to the landing (the hall or place of assembly is on the first storey), you enter from behind, and immediately perceive that this spacious apartment is lighted only by windows in the front. A visit to the hall does not fail to make one feel that the air is stale and sickly; in a word, that you are breathing, perhaps, the very same air an assembly of the citizens inhaled the previous week. A worse planned building for public purposes it would not be easy to find. Besides securing through ventilation—a feature essential in any plan for this kind of structure—there ought to be a door or other

* Read by Mr. John Robertson at the Manchester Statistical Society.

opening behind, corresponding with the entrance door; for without some such arrangement it is vain to expect an agreeable condition of the atmosphere, whether in a townhall or in a private mansion.

School-rooms.—Nowhere have I seen school-rooms so badly constructed and ventilated as in Prussia. In some instances you enter a large apartment full of children, with only one door and one window: the state of the atmosphere may be easily imagined. During a tour in Holland, some years ago, I looked into many of the Armen, or public primary schools, and found them more lofty and better ventilated than any buildings of the kind I had seen elsewhere. The ventilation is secured, in general, by means of windows facing each other in the opposed walls at a considerable elevation from the floor; and, being hung on their transverse axis, they are easily opened, and are, in fact, usually kept open. In many of our school-rooms there are windows only on one side, which is evidence that, in some things, we are truly German. No school-room should be planned without deliberate regard to the admission of light and the circulation and continual renewal of the air.

Barrack Dormitories.—As barrack construction has often been the subject of criticism, and is known to be generally in England very defective, I beg to call the attention of architects to the caserne for a large body of troops at Antwerp. It lodged, I think, last year, 2,587 men. The dormitories, which are wide and lofty, have through ventilation by means of very numerous tall windows in the opposed walls; and it is along these walls on either side that the beds are ranged. The stables, too, I found just as well ventilated as the dormitories of the soldiers. Without meaning to affirm that the hospitals, barracks, and other public buildings in Belgium are free from faults, I have certainly visited no country in which the laws of nature's ventilation are, upon the whole, so well observed.

Omnibuses.—Some years ago, when in London, I travelled, on a sultry day, by omnibus, from Camden Town to the Bank; and was struck by the unventilated state of the vehicle; the air in which was depressing—almost past endurance. The front was closed, and padded from top to bottom; and the means for ventilation were exactly the same as would have been, had one entered a large cask, on its side, with one end open. All the London omnibuses, at that time, were equally close and uncomfortable. In Manchester our omnibuses have, for many years, had through ventilation; in some by means of perforated zinc plates near the roof; and in others the admission of air is still more free by small semi-elliptical openings, which face each other on the two sides, close to the roof. In addition to this, there is a perforated metallic plate behind the driving-seat, facing the entrance door; thus securing, on all sides, a free communication with the atmosphere. In the hottest day the air is sweet, even when the vehicle is crowded; and there are no unpleasant draughts.

In referring to ventilation we are never to forget that, in order to secure nature's pure air, it is essential to guard against the many sources of its pollution. The air which descends to us is pure, but it is left to man to maintain it so; hence we have to drain our marshes, empty foul ditches, remove cesspools, and see that our streets are sewered and paved. The Deity has given laws for the moral government of society; but He leaves to man, on whom He has bestowed intelligence, the discovery and the application of those scientific means which are necessary to health and physical happiness.

RECREATION FOR THE WORKING CLASSES.—SUNDAY OPENING OF THE ROYAL BOTANIC GARDEN, EDINBURGH.

ENCOURAGED by the recent success of their Dublin brethren, the operatives of Edinburgh have taken up the question of the Sunday opening of the beautiful Botanic Garden on the Inverleith-road, Edinburgh. Like our garden at Glasnevin, it is mainly supported by an annual parliamentary grant; and like our garden, too, previous to last year, by being open only on working days, it is practically closed against the working classes, who so largely contribute to the public taxation. In the memorial now in course of signature in Edinburgh, Government are called upon to afford the people of Scotland the same privileges which the people of London have so long enjoyed at Hampton Court; and referring to the action of the Science and Art Department, and of Parliament, in the case of the Glasnevin Garden, they ask that a similar course be pursued in Edinburgh, wherein the vast majority of the people are favourable to the principle of Sunday recreation.

We are happy to observe the *North Briton* and the *Scotsman*—journals of large circulation in Edinburgh—sustaining this popular demand. We are quite sure that the House of Commons, if appealed to, will, with equal unanimity with that displayed in the Glasnevin case, decide in favour of the intelligent and well-conducted operatives of the Scottish capital.

Mr. Alexander Stewart, Surgeon-square, Edinburgh, is the hon. secretary to the working-man's committee for promoting this object.

We subjoin the following on this subject from the *North Briton*,

which must be taken as a conclusive evidence of "PUBLIC OPINION":—

"Our public bodies seem to consider with the parsons, that the day of rest ought to be a day of laziness. The artisan would not wash, shave, or dress himself upon that day. A movement has lately been commenced, and petitions are now being signed, to get the Botanic Gardens added to the few other places where the wives and families of working men may spend their Sunday afternoons. We are happy to know that our Town Council has nothing to say in the decision of this question. Had it come before them our sanctimonious Lord Provost, who must consult with his Duncan Ogilvies, and such like great-minded parsons, before he can decide about the granting of a license, our unctuous Bailies, and others who know the value of the minister's favour at election times, would undoubtedly have put their feet upon the proposal. We have heard parsons—Dr. Alexander we think we remember in particular—declaring that it was a sin even to look at the green trees or listen to a bird's song on the Sabbath day. Taking their cue from men of such enlarged views, our council generally decide any question that comes up touching Sunday enjoyment very summarily. Those who do not go to church ought to stay in the house upon that day; and if, says generally our Town Council, they do not, all places of public resort shall be closed against them.

"To the citizens of Edinburgh, or at least to the working classes, the Botanic Gardens have been heretofore as if they did not exist. There is nothing in or around the city of the same interest or importance, and as yet the place is known in a manner only to tourists. Foreigners speak of our Palm-house and our rare collection of plants as one of the finest in the world. Londoners come to Edinburgh, and upon their return expatiate upon the extraordinary collection of foreign plants which has been gathered, and of the beauty of the landscape visible from the gardens. But Edinburgh people, saving the privileged few who can afford to walk abroad on week days, know nothing of this exquisite retreat. They hear that somewhere about the north side of the city there is a place where scientific and non-scientific men and women may heartily enjoy themselves. They are told that off Inverleith-row there is a garden, kept up at the public expense, which it delights the hearts of the privileged to visit, but to them it is a sealed book. They cannot afford to go on week days and walk about the Gardens, through the conservatories, or the palm-house, and, consequently, in as far as the public are concerned, the place might as well not exist. It is not enough to say that the gardens are kept up for the use of students. If they are enjoyable—if they can afford pleasure or instruction to all classes—then they ought to be available at all times, and it will say little for the public spirit of this city if the petition now being signed fails to show that it is the general wish of the community that these gardens should be open to the artisan as well as to the lawyer or parson.

"It has been argued that by opening the Botanic Gardens plants might be stolen which it would be impossible, save at a great expense, to replace. Our experience of the conduct of the class whose case we advocate ought to be sufficient guarantee that this objection is unfounded. Our cemeteries are filled with flowers as beautiful, though not so valuable, as those in the Botanic Gardens, and when do we ever hear of any being stolen. In the few gardens to which we have access there are many tempting horticultural gems. The public go to these places, and enjoy the beauty that is before them, and never once have we heard an instance of any one attempting to carry that beauty home. In every one's mind there will, of course, remain the delight of having been in such a place, but the material has been left there untouched to delight anew. And so would it be with the Botanic Gardens if they were thrown open on the only one day when the people can visit them. Working men and their families will visit them, and visit them too with a deeper delight than do the crowds of snobs who dander downwards, impelled by ennui, on the week days. They will be happier and better for their visit. They will grow to prefer it infinitely to the filthy shebeens, which are now on the afternoons of the Sunday so overcrowded; and while the gardens will suffer no damage from the innovation, the morality of the presently excluded classes will be immensely improved."

DIGGING.—In digging a rod, square perch, or pole of ground, in spite of the usual dimensions (7 by 8 inches), the spade has to be thrust in 700 times; and as each spadeful of earth, if the spade penetrates 9 inches, as it ought to do, will weigh on the average full 17 lb., 11,900 lb. of earth has to be lifted, and the customary pay for doing this is 2½d. In digging an acre, the labourer has to cut out 112,000 spadefuls of earth, weighing about 17,000 cwts., or 850 tons, and during the work he moves over a distance of 14 miles. As the spade weighs between 8 and 9 lb., he has to lift, in fact, half as much more weight than specified above, or 1,278 tons. An able-bodied labourer can dig ten square perches per day, if the soil be light and moderately moist.—*Scottish Farmer.*

PROFESSOR MACMANUS' INAUGURAL ADDRESS AT ROYAL HIBERNIAN ACADEMY.

MR. PRESIDENT AND GENTLEMEN—In addressing the students of this institution, I have to remind them of two things—first, that they have interests in common with the Academy in which they receive their training; and, secondly, that they have duties proper to themselves. These, distinctly understood and practised, work well for the arts of the country, however remote the result may appear. The Academy, with parental anxiety for the progress of the students, furnish them with the means of art and with skillful superintendence. In return for these, they feel they have a reasonable right to expect, on the part of the student, good conduct, diligence in study, and regular attendance. Further, we are making arrangements to reward extraordinary merit with an Academy medal. Considering, then, that the Academy is disinterestedly and zealously performing this self-imposed task for the benefit of the art, it at once becomes the duty of students who avail themselves of these advantages to co-operate with them in this good work, and so fit themselves to take, on some future day, a more prominent position in promoting the arts of this country. The schools at present form a prominent part in the business of the Academy. They are partly assisted by aid from the State, the rest is from the proceeds of the annual exhibitions. From the spirit of its charter and laws, the Royal Hibernian Academy is unique, and is one of the most exclusive corporations in the kingdom—for no interest, rank, fee, nor influence of any kind can effect a membership—even the meritorious are excluded beyond the number fixed by law. Inasmuch as it is a great distinction to be a member of this very select body, the right-minded student will feel it incumbent on him to qualify and make himself worthy such an honour, and in his turn promote the laudable endeavours of others under similar circumstances. The necessity of co-operation in its members, even to the students of the Academy, but illustrates the fact that a body cannot be said to be in a healthy condition whilst any part of it is out of order; and before I direct attention to the course of study proper to the student, I may observe that the existing condition of a student indicates pretty fairly the degree of success which will attend the future artist. Inattention now cannot be recovered at a future season, for, besides the folly of taxing the future with the labour proper to the past—not an uncommon delusion with the worthless—a habit is induced which affects us through life, and the opportunity which unnumbered youthfulness offers us is removed when we reach manhood, surrounded as that state is with responsibilities and cares quite enough to engage all the faculties we have at our disposal. Remember, too, the more you learn now the less you will have to learn again, and do not anticipate the enjoyment of leisure before you get to work regularly. You will find the fruit of such late culture never ripens, but ends in bitterness on the approach of the winter of life. Next to procrastination is the frivolous search after novelty in the treatment of a picture, even before an acquaintance is made with the established mode. To the student both are equally new. But the experience of the Academy is in favour of the good old practice of the antique first, and life study afterwards; then follows colouring. This is the most rational order, and the student who has neither the sense nor the patience to take his studies in this order will never be heard of as an artist of eminence. This staple course of academics does not embrace or recognise original compositions amongst its studies, for any tendency in this direction is foreign to the object of legitimate academics, inasmuch as it would interfere with the original views of art, which should arise in the private studio of the artist. The main hindrance, however, to success in the art amongst its students is, the conceit that arises from indolence and a conscious incapacity to grapple with the necessary labour of a student going regularly through a prescribed course of study. Such a student may have succeeded in dazzling the eyes of his fellows by a show of happiness in some advanced specialty, and insinuates the dangerous doctrine that preparatory studies is only loss of time. When this idea gets into the heads of students, there is nothing more difficult to eradicate, for every aspirant regards in his instructor a person who wishes to keep him back, or, at least, who undervalues his latent genius, and, of course, is not listened to with patience. It is very desirable, however, to treat art-students as young gentlemen of understanding, and to suppose them capable of appreciating sound advice, and to direct them accordingly, for this is the period of life for observation, reading, and reflection. On their habits in these particulars will depend much of their success in after years, whilst the effect at the present time will be to imbue them with that becoming docility and modesty ever found associated with greatness. Having some score years' experience in art schools, it has occurred to me, from time to time, the rising generation of artists would be materially benefited by a thorough sifting of the students, at least annually, just to let impracticable and wayward

youths fall through and establish themselves elsewhere. From my knowledge of the students of this Academy, I can in justice say that no class of students can exceed them in good order and propriety of character. So much the better for themselves and the country. But, on the other hand, there is a strong desire on the part of the Academy to have a more systematic and regular attendance. And, addressing those who divide their attention with other avocations, I should simply say it is wiser to concentrate your powers, and, if possible to keep to one class of study only, for it will be seen that reading and the inspection of works of art should occupy any time not employed in manipulating. But the moment a student emancipates himself by rejecting the directions of his instructor, he ought, as a gentleman, cease to attend the school, where such an example would vitiate its order and discipline; but, if satisfied to remain a student, he cannot in fairness to the Academy continue a course hostile to its interests; it would be very like ingratitude, though simply want of thought. When pursuing his legitimate studies he must fortify himself in his knowledge of the fine arts, in order to avoid the conflicting opinions of critics; he must make himself thoroughly acquainted with the means and the object of the fine arts. These will exhibit themselves under the heads of drawing, or perspective light and shade, or projection, chiaroscuro or massing, colour or painting, composition or arrangement of parts in reference to the whole, invention, or the means of telling a story, and design, or a scientific knowledge of the aforesaid. The object of the arts will be found in the amount and kind of poetry proper to the subject. We shall thus find united knowledge and feeling in your works. The patient study of the antique, and after this the living model is, when humbly and earnestly pursued, the only true course for the laborious student. Invention and imagination must be kept in abeyance while in the condition of studentship. The only degree of imagination tolerable in a student is what enables him to comprehend the motive of the artist in making the model placed for his contemplation. I should recommend the art student at all convenient times to read and inspect the books and works in the Academy collected for his special instruction; and while thus acquiring a knowledge of art, you must ever regard with suspicion the unauthorised dicta of non-professional critics, however eloquent or plausible they may appear, for it is found that the interests of art are sacrificed to some crotchet or vanity of the author, who, as a rule, decry the practice in art which they themselves cannot understand. The most prominent spirits of this genus may here be glanced at. You will remark the patronising easy assurance which characterises the writings of the man who playfully writes himself "Tom Taylor, M.A."—the servility that vulgarises the heartless and scoffing Thornbury—the pragmatical assumption and pedantic insolence of those graduates of Oxford, Palgrave and Ruskin. These writers are just now the fashion; but the advice they give is not safe for the student to follow, nor the reader who desires an acquaintance with the fine arts to consult. The very startling titles given to the works of the latter mark the charlatan. Another educational feature, which it is the object of the Academy to promote, is the exhibition of the works of living artists, and though the Academy opens its doors to artists of all countries, their works are fairly, nay, hospitably treated to the best places on our walls. With all this liberality, the Irish resident artists sustained the weight of talent in the late exhibition, which was remarkable for being the best show of native talent ever seen in Dublin. In conclusion, I think it proper to state that the schools of the Academy are open to all, without limit or expense, provided the candidate for admission has passed an examination in the four elementary specialties of free hand drawing, model drawing, practical geometry, and perspective, and is of the male sex. An examination of students' works, produced during the session 1861–2, will take place on the 20th of September next, and three weeks before that time the students who have passed in the second grade will not be put to compete for the Academy bronze medals. For this purpose a living model will be placed in the life school, a model with drapery in the painting school, and a cast from the antique in the antique gallery. The president and keeper of this Academy, with the art inspector of the department of science and art, will award a medal to the best work in each school. Also, should students in architecture present any architectural drawing in competition, a bronze medal will be awarded to the best. A silver medal will be given to the best work produced in any of the schools, whether certificated or not. It is contemplated on a future occasion to offer a gold or silver medal for the best historical painting. The medals will be given to the successful students at a general meeting of the Academy on the 7th October next.

Kaulbach's great cartoon of "The Times of the Reformation," painted for the New Museum at Berlin, is finished, and will be exhibited publicly this month.

RECENT PATENTS AND INVENTIONS.

J. HOWE.—"Improvement in the manufacture of gas and other chandeliers." Here the patentee takes a series of square or angular tubes, and bends them into such forms that when they are symmetrically arranged about a common axis, they form a skeleton or framing of the general figure which it is intended the chandelier shall have. The tubes are fixed together by screwing, brazing, or otherwise, and the chandelier is finished by the addition of ornaments.

A. H. CHURCH.—"Improvements in the means of preserving stone, brick, slate, wood, cement, stucco, plaster, whitewash, and colourwash, from the injurious action of atmospheric and other influences; also in the application of colours to the surfaces of stone, brick, slate, wood, cement, stucco, mortar, clay, plaster of Paris, plaster, whitewash, and colourwash, and in the retention of such colours thereon." The patentee claims:—1. The exclusive use of a solution of silica in water, when preceded or followed by a solution of baryta or strontia in water; that is to say, the successive or consecutive use of such solutions as applied to any of the recited purposes of the invention, according to the processes and after the manner described. 2. The exclusive use of the mixture of a solution of silicate of potash or soda with sulphuric, hydrochloric, or other common and suitable acid (and which mixture may be regarded as an impure solution of silica), preceded or followed by a solution of baryta or strontia, as applied to any of the purposes of the invention.

R. BOODEY and W. WILSON.—"Improvements in the process of manufacturing artificial stones, parts of which improvements are also applicable to the manufacture of artificial fuel." The patentees claim:—1. The application and use of sal ammoniac, or other salts of ammonia, in the manufacture of artificial stones or bricks, made according to the process described in the specification of L. D. OWEN's patent (No. 1,270). 2. The manufacture and use of artificial stones or bricks entirely of hydraulic or other limes, or of a combination of different varieties of lime, for the purposes described. 3. The manufacture and use of artificial stones or bricks of a black or dark colour, either for building purposes or for fuel, as described. 4. The application and use of sal ammoniac, or other salts of ammonia, in the manufacture of artificial stones or bricks, made entirely of hydraulic or other limes, or of a combination of different varieties of lime, or in the composition of which natural or artificial calcareous cements are employed.

M. ALLEN.—"Improvements in the construction of buildings for the prevention of fire, and in the materials to be employed therein and therefor." Here the patentee economises the space which the staircases usually occupy, and renders the building fireproof by dividing or insulating the staircases from the building of which they form a part. He forms a material for building purposes by the combination of cinders, slags, coke, culm, clinkers, or other calcined substances of similar character, with Portland or other cement.

H. SCHATZEN.—"Improvements in the manufacture or construction of gas meters. This invention is not described apart from the drawings.

W. CLARK.—"Improvements in processes for preserving and colouring wood, denominated xylochromic and xyloplastic processes." (A communication.) The details of this invention are too voluminous to be quoted here at sufficient length for an intelligible abstract.

C. MANWARING.—"Improvements in flushing apparatus for closets, sewers, and other water services." This consists in self-acting mechanical appliances, whereby the closet is cleaned by supplying water through a cistern connected to and working with a small supply cock or inlet valve, to which the patentee applies an air vessel, by which the supply valve can be worked against any pressure with ease and soft action, the large outlet or discharge valve from which is closed while the inlet valve is opened, and vice versa.

J. WENSTER.—"Improvements in gas fittings." This invention refers: 1. To improvements in the knibs and burners. 2. To the slides of movable pendants or gas-eiers. In making the knibs or burners the patentee cuts the aperture for the gas in such direction that the flame jets out downwards, and then rises upwards slightly in an unbroken form. In the argand burner he perforates the holes in a ring in the sides of the burner, instead of upon the top; the effect of this arrangement is that the air acts upon the flame immediately as it issues from the burner, and more perfect combustion is insured. The improvements in the sliding parts of movable pendants or gas-eiers, consist in the employment of a substitute for the balance weights and chains connected to the ordinary water slide, which substitute is thus formed upon the water cup. He screws a gland or stuffing box, provided at the top with a screw or nut for tightening the parts round the fixed tube. He wraps loosely a strip of thin metal or metal gauze overlapping the joint, and he prefers for this purpose block tin in the form of thin sheets. Over this runner, and completely surrounding it, he places a short tube of vulcanised indiarubber acting with equal pressure all round the metal runner; the rubber keeps the metal runner always in contact with the fixed gas tube. A loose collar is employed to work upon the top of the indiarubber tube, compressing it, but without affecting the metal runner, and this loose collar is kept to its work by a screw and cap working into the stuffing box.

LAW PROCEEDINGS.

Ex parte Allen and Prendergast, in re Richard Pierce, a Bankrupt.—Judge Berwick, in pronouncing judgment in this case on the 15th ult., said it raised the same question as was involved in the preceding cases, besides another question important to the parties. The bankrupt was a builder. In 1861, being pressed for money to carry out his contracts, he entered into a private arrangement with his creditors, vesting all his estate in two of them—William Allen and Thomas Prendergast—as trustees. They permitted the bankrupt to carry on his contracts, and made advances to him to the extent of £404. In June, 1861, the bankrupt was obliged to bring his arrangement into court. That arrangement was not afterwards carried out, and the proceedings were turned into bankruptcy. Mr. Allen was appointed assignee on his own vote and on that of Mr. Prendergast. After the passing of the final examination, Messrs. Allen and Prendergast claimed to be paid their demand in full, and in priority to the other creditors. His Lordship having reviewed the facts of the case, refused the application of Messrs. Allen and Prendergast, but expressed his opinion that their conduct had been *bona fide* throughout, therefore he would not give any costs against them.

Sir Charles Bright has taken a seat at the board of the London District Telegraph Company, in place of Mr. Brett.

Notes of New Works.

The church of Mayo Bridge (says the *Freeman*) reflects the highest honour on the Rev. J. Brennan and his flock, who have erected a temple worthy of the Most High. On the 12th of October it will be solemnly dedicated. Adjacent to the new church schools have been erected for the instruction of the youth of the district.

It is proposed to erect a new Roman Catholic church in Enniskillen.

The ceremony of laying the foundation stone of the new North-West of Ulster Female Penitentiary, to be erected at the Crescent, Gilmour's lane, Derry, took place on Saturday last. By the plans it appears that the internal arrangements, which are very complete, comprise a board-room and refectory, probationers' room, sick room, matron's and under-matron's apartments, baths, closets, &c., with ample provision for culinary purposes, and accommodation in separate sleeping-rooms for thirty inmates. There will also be an extensive laundry attached to the main building, fitted up with washing apparatus and steam-drying closets of the most approved construction. Though no attempt has been made at costly external embellishment, the building will nevertheless present a very neat and pleasing appearance. The front, which extends forty-three feet on the street, will be of red and white bricks. The flank, which, including laundry range, presents a frontage of one hundred and fifty-seven feet to the pleasure-grounds, is to be of rubble stone, with white fire-brick facings. Mr. Robert Ferguson, builder, Pump-street, Derry, is the contractor, and, we have no doubt, will execute the works in his usual satisfactory and creditable manner. Mr. Ferguson, of the firm of Frazer, Ferguson, and Frazer, is the architect.

Sundry works are to be executed at the Church of the Holy Trinity, Cork, under the direction of the Ecclesiastical Commissioners' architects.

RAILWAY NEWS.

MIDLAND GREAT WESTERN RAILWAY OF IRELAND.—The Directors have decided upon recommending to the proprietors, at their forthcoming meeting on the 18th inst., a dividend at the rate of five per cent. per annum, free of income-tax, for the half-year ending 30th June, 1862.

CORK AND KINSALE JUNCTION.—An engine and carriage containing the local directors of the Cork and Bandon Railway, traffic manager, and locomotive superintendent, travelled, for the first time, a portion of this line on Wednesday, 27th ult., and which is now about being ballasted, with a view of opening to Farrangalway, about 2½ miles from Kinsale, during the ensuing month. The rock cutting, at the north side of the Union Work-house, a work of great magnitude, is not yet finished, but from the exertions making, it is hoped that a few months from this date will complete the entire line. In the meantime, arrangements are being made by the Cork and Kinsale Junction Railway Company with Mr. Black, the eminent coach proprietor, for working the passenger traffic to and from the temporary terminus by well-appointed omnibuses and cars.—*Cork Herald*.

The works of the Londonderry and Lough Swilly Railway are so advanced, that the Directors and the Deputation from the Irish Society were able to make an experimental trip over a considerable portion of the line on the 25th ult. Nearly six miles of the railway are completed, and the remainder is in a forward state. The Government inspector has been over the line, and there is every reason to believe, says the *Guardian*, that his report will show that the company are in a position to claim a loan, for the purpose of completing the undertaking.

The Directors of the Cork and Kinsale Junction Railway Company in their report express a regret that they were not in the position to announce the opening of the line, as they had at the last half-yearly meeting announced. The disappointment had arisen from the contractors having failed to carry out and complete their engagement before the 1st of July, for which they had rendered themselves liable to the penalty specified in their agreement. A portion of the line, however, from Cross Barry to Jagos Mill, would be opened for traffic in about three weeks from the present time, and the works on the remaining portion of the line were so far advanced—the permanent way being laid—that they looked forward to having the whole line completed and open for traffic before the end of the present year.

The Dublin and Meath Railway was opened for traffic on the 29th ult.

Messrs. BARTLETT, Brothers, and Co. have lately brought before the public a most useful and scientific process for the preservation of all surfaces consisting of cement, stucco, brick, or like substances; the success attending their indurating solutions—which were the invention of one of our townsmen—has led them to make the siliceous paint a large commercial feature, with every promise of a like result. The materials used consist of carbonates of the metals and alkaline earths, fixed in an irremovable and perfectly insoluble coating, by a prepared silicate of potash or fixing solution. We believe that Fuchs, Kuhlman, and others, have for a long series of years tried to produce the results that have crowned the efforts of this enterprising firm. Houses to which this siliceous paint has been applied fully evidence the good qualities claimed for it.

Reviews.

Cottage Architectural Review.

UNDER the auspices of "The Central Cottage Improvement Society," and for the complete recording of its proceedings, this periodical has been started, the first number containing on its title-page a sketch of a pair of cottages for agricultural labourers, with three bed-rooms to each—estimated cost, £175 per pair; and the contents chiefly embracing plans and description of same design; a lengthened report of a recent annual meeting of the Society, opinions of the press, &c., &c. We hope to see the institution and its journal prosper as they deserve.

Varied Items.

A model of the Hartley pit-shaft, and the yard-seam at which the fatal accident occurred, has been added to the Polytechnic Institution.

The yield from a stratum of blue stone at Forest of Dean quarries, Gloucestershire, has been employed with considerable effect in the *voussoirs* of the arches in the façade of the Royal Insurance Company's new premises, in King-street, Manchester. [This stone is well worthy the special attention of architects in Ireland. Mr. Lyons, of 26, Lower Gardiner-street, is the agent.]

The Surrey Gardens, in which stood Owen Jones' much-admired music hall (destroyed by fire), are being converted into hospital grounds, and the remnants of the hall itself adapted to the requirements of some 250 inmates.

An inspection by officials and their friends has taken place of the Metropolitan Subterranean Railway, prior to its being opened for traffic. All the difficulties attending the construction appear to have been surmounted with extraordinary ability and skill. The station works at Paddington and King's Cross (where there is a double branch trumpet-shaped tunnel) especially are comprehensive and far advanced. Mr. Fowler is the engineer, and Messrs. Wright and Jay the contractors.

The great (?) Umbrella question between an inflexible individual who would not pay "the fee" to the caretaker, but still left the precious article at the International Exhibition Building, came off lately before the Brompton County Court Judge, who decided that the Commissioners must return it, because it was received under protest against the fee. Costs, of course, were carried by this decision. The Commissioners, however, still retain the power to exclude "objectors to the fee," and properly so, as who knows what irremediable damage a poke, through awkwardness or design, of an umbrella, a stick, &c., might occasion to some of the art treasures in the building?

The Royal assent was given, previous to the prorogation of Parliament, to the Irish Poor Relief, Savings Banks, Weights and Measures, and County Surveyors' Bills.

Mr. George Cruikshank's *magnum opus*, the "Worship of Bacchus," is now being exhibited in London. This singular picture, which is intended to show the misery of drinking, is of very large size, and must contain many hundreds of figures.

Colonel Durnford has been appointed Commanding Royal Engineers in this country in succession to Colonel Frome, appointed to command the Royal Engineers at Gibraltar.

The next meeting of the British Association for the Advancement of Science will be held at Cambridge, commencing on Wednesday, October 1, 1862, under the presidency of the Rev. R. Willis, M.A., F.R.S., Jacksonian Professor of Natural and Experimental Philosophy in the University of Cambridge. The reception Room will be at the Town Hall.

During the excavations now being proceeded with at Pompeii, an interesting discovery of a bakelhouse, with eighty-two loaves, shrivelled and black, and only 1,783 years old, was recently made.

If you do not economise you will never reach any high position. Without money you cannot advance yourself. Men will partake of your hospitality, and be kind, affable, and attentive, while the money lasts; but the human animal has an instinct to slun poverty, and "to cut" the host of better days, if he has nothing for them to cut.

Miscellaneous.

ROLLING STOCK COMPANY OF IRELAND.—We (*Freeman*) understand the deputation of directors from London have concluded a provisional agreement for the purchase of the extensive and well-known concerns, the Seville Ironworks in this city, and that they fully expect to commence operations therein very shortly.

ANCIENT AND MODERN GLASS.—A complete and conclusive analysis of the glass found at Pompeii and Herculaneum, manufactured anterior to A.D. 79, has been made by M. Bontemps, of Paris, and communicated to the Academy of Sciences. M. Bontemps has received a great number of specimens of glass from Pompeii, all of which he pronounces to have been not blown, but cast and rolled. The colour is bluish green, and the analysis, as will be seen, shews that its component parts greatly resemble good modern glass:—

POMPEII GLASS.				GOOD MODERN GLASS.			
Silica	..	..	69.43	Silica	..	..	72.50
Lime	..	..	7.24	Lime	..	..	13.10
Soda	..	..	17.31	Soda	..	..	18.60
Alumina	..	..	3.55	Alumina	..	..	1.00
Oxide of iron	..	..	1.15	Oxides of iron and manganese	..	..	0.40
Oxide of manganese	..	..	0.39				
Oxide of copper	..	..	a trace				100.000
99.07							

TEMPERATURE OF CHAMBERS.—Human life would be prolonged and an incalculable amount of distress prevented, if a little fire were kept burning on the hearth during the night, winter and summer, if the doors and windows are kept closed. One great advantage would be, that a constant draft would be kept through the room, fireplace, and chimney, making a great degree of atmospheric vitiation impossible. There is a baleful error in the popular mind as to the nature and effects of pure air, warm air, and cold air. Warm air may be as pure as that of the poles; and although cold air is almost a synonym of pure air, and although it is healthful to breathe a cold air asleep or awake, yet the breathing of cold air is healthful only to a certain extent. It is not true that because it is healthful to sleep in a cool room, it is more healthful to sleep in a very cold room, not only because, as has been previously stated, carbonic acid becomes heavy under a great cold, and falls from the ceiling to the floor and bed of the sleeper, but because also a great degree of cold in a room where one is sleeping is very certain to cause dangerous and even fatal forms of congestion in the brain and lungs. The same ailments result from keeping sitting or sleeping apartments overheated. In midwinter the heat of a sitting-room should not exceed 65 degs. of Fahrenheit, five feet above the floor. In the chambers of the sick in French hospitals, the directors are careful that there shall not be a greater heat than 60 degs. or about 15 degs. Centigrade. The temperature of a sleeping apartment for invalids and for children in health should range about 50 degs. in cold weather, and not run lower than 35 degs.; there is no advantage in sleeping in a colder atmosphere. Five hundred cubic inches of pure air should be delivered to invalids and sleepers every hour, as is the custom in the best regulated French hospitals.—*Hall's Journal of Health*.

A NEW COMET.—Another celestial stranger has most unexpectedly appeared, discovered, we believe, by Herr Hermann Romberg, of Barclay's Observatory, Leyton. It is said to be rapidly approaching the earth.

PAGE AND TURNER'S DESIGN FOR CARLISLE BRIDGE.—Referring to the illustration in our No. for 15th ult., and to the accompanying description, we are asked to remove the impression alleged as likely to be conveyed by the wording of the latter (in which Mr. George Gordon Page, the joint author with Mr. Turner, is described as son and pupil of the eminent engineer of that name), and to state that the former has studied nine years under the latter, and was associated with him in most of his important works. We feel bound to say that "the wording" in question would hardly prejudice the author's claims, which will, doubtless, be judged on the merits of the designs and drawings alone.

NOTICES.

LITERARY PIRACY.—Original Articles and paragraphs in the *Dublin Builder* are frequently transferred to the columns of other journals, without acknowledgment; and our subsequent remonstrances against such piratic acts are treated with similar discourtesy. Of the latest perpetrations, we have to notice, with regret, that the *General Advertiser* appropriated to itself, on Saturday week, two articles out of this journal—one, "The Latest Dodge in London," witnessed and described by the Editor of the *DUBLIN BUILDER* in that publication for 1st ult., and re-copied, without quotation, into the *General Advertiser* of 23rd ult. The editor of the latter treated a letter, addressed to him by us, on the subject with the civility of silence.

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The Dublin Builder.

VOL. IV.—No. 66.

VENTILATION.*

OF the many subjects comprised under the title of architectural science, that of "ventilation" has, perhaps, given rise to the greatest discussion, to the elucidation of the largest number of theories and facts, and to the most diametrically opposite opinions as to its nature and effects.

Some valuable inventions have, from time to time, come to light; some admirably-written essays have also issued from the press, but still the public understand it imperfectly, and every day new and important facts are disclosed, proving both ignorance of its principles, and want of appreciation of its necessity.

Comparatively few of our modern architects, in designing their buildings, adopt the measures necessary to ensure perfect ventilation, and, in plain truth, the majority of them—who do not, perhaps, wholly disregard it—entertain such erroneous opinions upon the means to obtain it, as to render every attempt a signal failure, redounding to their own discredit, and to the inconvenience or loss of all parties concerned.

The most comprehensive and practical information that we have yet met with on this subject is contained in the work now before us, which originally formed the subject matter of an article for the *Cyclopædia* of the late Dr. Nichol, Professor of Astronomy in the University of Glasgow, and was recommended by that eminent authority "to be republished as a substantive work." Mr. Ritchie, to use his own terms, has comprised within a moderate space not only a synopsis of the various plans, systems, and adaptations proposed for effecting ventilation, but also as much theoretical, scientific, and practical information as will enable those interested to form an opinion on the science and art of ventilation, and to distinguish between *correct* and *false* principles, which latter have led to many of the various forms of ventilators now in use."

To this effect the author, for simplicity and distinctness, divides his work into five chapters, devoted respectively to the consideration of ventilation in its chemical and physiological relations to *natural* or *spontaneous* ventilation, to *forced* ventilation, and to the description of various artificial mechanical agents employed.

In the chapter treating of "*neglect* of ventilation," he repeats oft-told truths, viz., that "dwellings should not be densely packed together;" that "the influence of light is essential for the preservation of health;" that "dark, dirty, confined alleys may be seen in many cities and towns, into which the sun's rays can hardly penetrate, and little pure air find its way."

"Were people" (says the author) "impressed with a knowledge of the simple facts enunciated, and were they to try and maintain pure air for the purposes of respiration, and justly view it as the food they eat, they would be mindful that without it good health could not be enjoyed. Were parents or heads of families, mothers in the nursery, clergymen, teachers, masters, and foremen having people under their charge, were clerks, and servants, and workmen impressed with these truths, how different might be the attention paid to the subject, and how much more beneficial the results as regards the health of the community."

In the dwellings of artisans it is suggested that much might be done "to carry out a systematic mode of ventilation on a large scale;" and as regards previous attempts, that "few have in any degree been successful; further, that the failure arises from obvious causes; amongst others, that offensive currents have been made from air openings, improperly placed at the ceilings of rooms or roofs of buildings, sometimes pouring down cold air like a shower upon the heads of the inmates, chilling all within its range. At other times a strong current the other way has been created, equally annoying to the inmates, which leads to the aper-

ture being closed up; and occasionally what is called a ventilator is made so small as to tend only to mislead those who *trust* to its use. These errors proceed in general from the desire to forward some favourite scheme or theory, rather than seemingly from the wish to obtain the great object in view—the preservation of the public health."

After treating the question of ventilation generally, such as "the amount of fresh air required," the "fatal effects of bad air," &c., Mr. Ritchie proceeds to "the ventilation of bed-rooms," which, he says, "considering that a third part of every day's existence is generally spent therein, where *pure air is most necessary*, it is surprising that the importance of a constant supply of fresh air for respiration, as well as the necessity of having the air of the room thoroughly renovated when unoccupied, is *often overlooked*. A free and continuous circulation of pure air in the bedroom during the night is essential for every one, the more so where a number of persons sleep in one apartment, as in an hospital, barracks, or in a nursery room."

It is a notorious fact that, notwithstanding all that has been said relative to the defective ventilation in this latter class of buildings, and the attempts to remedy it by the erection of so-called "model establishments," very many of the most recent structures throughout the kingdom—and in this very city too—are infinitely worse than those of which they are intended to be an improved edition.

Mr. Ritchie believes that "many of the great advantages of open fire-places for ventilation," so much talked about, are "merely ideal," and "only useful in winter;" and in connexion with this part of his subject he quotes the remarks of an able writer in the *Encyclopædia Britannica*, under the head of Ventilation, who says, "The following points require especial attention in the construction of the common fire-place; *first*, it should be provided with an independent supply of air entering in its immediate vicinity; *second*, an open fire-place, unless the air enters from the ceiling, often produces little or no ventilation above the level of the chimney place, and even then it does not afford the best and purest atmosphere; *third*, the air above may be comparatively stagnant and offensive in the extreme from the combustion and the products of respiration, while a fresh current moves along the floor to the fire-place." This corresponds in principle substantially with our own recent remarks on "quantity and quality of ventilation," wherein we showed that there existed a very popular fallacy, that because an apartment was furnished with a fire-place, and that a quantity of fresh air was circulated through it, it should of necessity be thoroughly ventilated; for the vitiated air being specifically lighter than the fresh, will nevertheless keep playing upwards at the ceiling, occupying the place of fresh air, for want of vent at a *proper* point through which to effect its escape. All departments of ventilation may be guided by the observance of a simple rule, viz., the admission of a sufficiency of fresh air at a point or points to produce an upward and general current through the room, and the provision of suitable opens for the withdrawal of the foul; yet, out of this simplicity vast complications arise; and experiments founded on error fail over and over again.

Mr. Ritchie, after enumerating the ventilating apparatuses designed by Tredgold, Arnott, Moore, Sherringham, and others, gives illustrations of buildings ventilated by spontaneous and forced action respectively. Of the former is the *Justiciary Court*, Edinburgh, wherein fresh air is supplied through gratings in the floor and seats, communicating with an open space underneath, and in connexion with the heating apparatus, whereby the temperature may be regulated; and the foul is withdrawn through registers in the ceiling into an outer opening, with luffer boarding. There are also sections given of the *First and Second Circuit Court-houses*, Glasgow, showing other modes stated to have been successfully employed under Mr. Ritchie's superintendence.

This book likewise embraces some excellent chapters on ventilation by gas, by hot water, and by steam; also by forced mechanical agents, such as the fan, the drum, bellows, and pumps, &c., which though only enabled to glance at, afford us sufficient evidence of the author's capacity to deal with his subject.

All who have to do with the construction of buildings should avail themselves of Mr. Ritchie's experience herein embodied, by purchasing his work.

* Treatise on Ventilation, Natural and Artificial, by Robert Ritchie, C.E. London: Lockwood and Co., 7, Stationers' Hall, Court. 1862.

HOUSES FOR THE WORKING POOR.*

THAT "not one-half of the world knows how the other half lives," is very startlingly illustrated in the revelations contained in Mr. Nugent Robinson's pamphlet under the above title. The author, with a philanthropic spirit that cannot be too highly commended, has penetrated the densest and most unhealthy districts in this city, and proceeded into the wretched dwellings situated in courts and alleys, giving to the public the result of his inspection in the following graphic language:—

"There are thousands in this our small city. Living in tenements. Living in sties. Living in dung-heaps. Living in a poisonous atmosphere, little better than that of Hartley coal-pit. Living anywhere for cheapness. Thousands of people weary of the world, disgusted with their fate, discontented, gloomy, morose, the best feelings in their nature undermined. No golden association of idea in the word Home. No joy in the time-honoured fireside. No pleasure save in the glitter of the dram-shop. No self-respect. No cleanliness. Decency fading away. Morality fainting!

"And wherefore? Because their Homes are wretched. Because their dwellings are fitter for swine than human beings. Because air, light, and water, the three gifts which Heaven has flung under the very feet of man, are denied them. Work is cheap, wages are low, and the poor, honest, hard-working mechanic toils from the crowing of the cock until the sun grows red in the west.

"Let us follow a poor working man to his Home.

"As a rule, the lane he resides in is dark, gloomy, and close; suffocating in summer, gnawingly cold in winter, with a malarious slime oozing down the centre, emitting a sickening stench, carrying with it pestilence and death. The houses are bleared and bankrupt-looking, with misery branded on every brick. The doors hang off their hinges, the steps are replaced with mounds of filth, the windows choked with rags. Enter the hall, and the odour of decayed vegetable matter that assails the nostrils is unbearable. It glides through the house like an evil spirit, blighting all that comes within its noxious influence. The crazy stairs are old, broken, and dangerous. Such is the exterior; and now peep into the inner life of this Home.

"The room is small, close, dark, ill-smelling; the furniture scanty and threadbare. Beds in every corner. Cooking going on, eating going on, washing going on, drying going on, sleeping going on. Heaven help the poor wretch stricken down by the hand of sickness in such a place as this, for fever peers from out each corner, and every morbid influence is focussed to hunt him into delirium. Beds here, beds there, beds on all sides, touching each other, and occupying at least two-thirds of the entire space of the room. No curtains, no screens, no provision for a decent separation of the sexes. Men, women, and children huddled together like animals—thousands of people living thus. Shield us!

"Dr. Letheby, the great chemist and authority on sanitary matters, has stated that in those districts where disease mostly generated, he has found the air to be not only deficient of a due proportion of oxygen, but containing three times the usual amount of carbonic acid.

"To deprive a man of fresh air is to rob him of a portion of his existence—to filch from him his richest inheritance. Fresh air is the universal nurse—the hand that soothes and fosters the frail reed of our being, that raises the seed, expands the leaf, causing the flower to bloom, and the fruit to ripen. To inhale it, the infant turns as to the light. To it the boy owes the russet of his cheek, and the elasticity of his nature. To fresh air the working man trusts for brawn and muscle, that he may fight the good fight, and earn an honest livelihood by the sweat of his brow. Fresh air, through which the sick man gazes at hope, for which he that is dying gasps. Fresh air—the life-giver, health-giver, joy-giver, thought-giver, is denied the working man in this our city of Dublin, denied him, even though he is willing to pay for it.

"There is about one-third of the total number of houses in this city let out in tenements, at rack-rents. These houses are all in the hands of 'house-jobbers.' The 'house-jobber' buys a worn-out house for a mere trifle. The building is in a tottering condition, so much the better for him; he will get it knocked down to him at the price of the old bricks of which it is formed. Does he repair the stairs? No. Does he replace the boards rotted away with damp and age? No. Does he glaze the windows? No. Does he even expend three or four shillings in whitewash? Decidedly not. He requires 75 per cent. for his money, and these little items, when added together, tend towards the reduction of his profits. We naturally inquire, if all the owners of such pro-

perty are equally callous as to the health and comfort of their tenants. We fear the reply is—*All*. It is a disgraceful confession to be compelled to make, but it is, nevertheless, true. Another fact will be worth laying a stress upon. The house-jobbers muster among their ranks many men of high social position, men of education, men of irreproachable character.

"It is a mere sham to state that these gentlemen are in ignorance of the real state of the case. So that the usual weekly sum is paid to them by their agent, they care not a brass farthing how it is extorted. But they must feel that this money has not been weighed in the scales of justice, and that it is the produce of an unhallowed traffic. As a rule, the landlord never appears on the stage; he employs a low, brutish fellow to collect the rents on commission, thereby making it the interest of this man to extort the money, if not for his employer's benefit, at least for his own. Apathy and Avarice are the guiding spirits of the 'house-jobber'; Avarice sends forth the flat, and Apathy endorses it. Avarice clutches at the rack-rent, and Apathy sleeps over the wail accompanying it.

"It is notorious that the wretched dwellings of the poor are more remunerative than any other description of house property.

"Yet we live in an age of progress. This our city of Dublin is improving in its personal appearance every day. Our shops are Crystal Palaces, such as many a foreign potentate might sigh for. Such gilding, such glass, such panelling; why, our forefathers would willingly have paid their 3s. and 3d., or even 5s. and 5d., for the privilege of gazing upon them in a series of dissolving views. The houses in our squares and aristocratic 'quarters' are being fitted up with all the newest appurtenances which fashion can mould into anything in the shape of utility! This is the golden age of Brummagem architecture, and capitalists pay fabulous prices for the newest formation of tile, or the most recent deformity of brick. All is being done that can be done for the mansions of the rich, while the dwellings of the poor are unnoticed and uncared for. The tide has ebbed, but the black ooze is lying under the noon-day sun, festering, rotting, and breeding pestilence and corruption.

"Of the several examples of improved dwellings for the labouring classes undertaken by the Society, the most important is that of a model building to accommodate a large number of families, on a plan adapted to situations where the value of ground renders it necessary to occupy but a limited space. To the arrangement and construction of such an edifice the experience and scientific skill of their honorary architect, Henry Roberts, Esq., was unremittingly devoted, with a view to combine therein every suitable contrivance worthy of imitation; a very eligible site, on the estate of the Duke of Bedford, between New Oxford-street and Great Russell-street, near to the lodging-house in George-street, and sufficient to accommodate forty-eight families, being liberally granted to the Society, on lease for ninety-nine years, at a rent of £50 per annum.

"The Committee next purchased a spacious freehold site, eligibly situated in Portpool-lane, Gray's Inn-lane, and built thereon model dwellings for twenty families, and for one hundred and twenty-eight single women; whilst an existing building has been converted into a spacious washhouse for the use of the neighbourhood, as well as of the tenants of the model dwellings.

"The twenty families occupy two distinct buildings of four storeys in height—one building having three tenements, with three rooms each on a floor; the other having two tenements, with two rooms each on a floor—a scullery and other requisite conveniences being provided separately for each family, whilst to both houses there is an open staircase, and to the larger one a gallery of communication, by which means complete ventilation is secured. In their arrangement, it was the aim of Mr. Henry Roberts, the honorary architect, to show how the disadvantages of an enclosed common staircase may, in a great measure, be obviated; and to offer two models of houses, one adapted to the accommodation of two, and the other of three families on a floor.

"The one hundred and twenty-eight single women, many of whom are presumed to be poor needlewomen, occupy sixty-four rooms, in a building of four storeys, divided by a central staircase; a corridor on either side forms a lobby to eight rooms, each 12 ft. 6 in. long, by 9 ft. 6 in. wide, sufficiently large for two persons. They are fitted up with two iron bedsteads, a table, chairs, and a washing-stand. The charge is one shilling per week for each person, or two shillings per room. This building is intended to meet the peculiar and difficult circumstances of a class of persons on whose behalf much public sympathy has been justly excited, and for whom no suitable provision had hitherto been made by the Society.

"The washhouse, 60 ft. long by 20 ft. broad (formerly a brew-house), contains washing-troughs for thirty-four persons, and ironing-tables for twelve persons; three wringing-machines, and thirty-four drying horses, heated by hot air. The arrangements

* Published by Goodwin, Son, and Nethercott, 79, Marlborough-street.

for this establishment are made with a view to avoid confusion, by keeping the various processes as distinct as possible.

"So numerous are the applications for sharing in the benefit of this accommodation, that it is shortly intended to make arrangements for increasing it.

"With this exception of the washhouse roof, the buildings are of *fire-proof* construction."

Mr. Robinson, in his valuable pamphlet, advocates the "establishment of model lodging houses," and refers to the exertions of the late Prince Consort in that regard, resulting in great benefit to the labouring poor. He says that—

"Since model lodging houses have become 'familiar in the mouth as household words,' it is needless to expatiate on the subject. There is perhaps no city in Europe so utterly deficient in proper dwelling accommodation as Dublin. In a paper which I had the honour of reading at the recent *seance* of the Social Science Association, I entered into statistics which it were superfluous to repeat here, and I then endeavoured, in a cursory manner, to point out how beneficial the establishment of model lodging houses in some of the meaner districts in this city would prove. Since that period I have conversed upon the subject with deep-thinking men, and the unanimous verdict is 'something must be done.' We have but one set of model lodging houses for families in this city, and that is established on so small a scale as merely to prove beneficial to about thirty families, and is comparatively unknown. Nevertheless, there are 200 people provided with habitations such as human beings should be able to obtain in a large city, and in an age of progress. But why should not this number swell to 2,000, or 3,000, or 5,000? If Mr. Vance is able to achieve single-handed the emancipation of 200 of his fellow-brethren from the awful slavery of poisonous atmosphere, why should not 200 or 300 individuals, actuated by the same motive, and bound together by the one link of sympathy, be able to effect an amount of good proportionate to their numbers? If one man, by the effort of a strong will and firm purpose, relieves the necessity of 200 people, a few men banded together will achieve far more important results than any that could lie within the scope of one man's reach. It was an undertaking of no mean responsibility for a single individual to embark in, and it is a happiness to be able to state that, as a pecuniary speculation, it has proved eminently satisfactory. The air of cheerfulness, brightness, and comfort that pervades this little nook of Mr. Vance's, is most gratifying to behold; while the inmates, especially the children, present an appearance of cleanliness and prosperity that one little expects to meet with in a locality such as Cook-street. Not a single case of mortality has occurred, and all the children at present residing in the building have been born upon the premises. The medical man never ventures within these precincts, sacred to health, save upon those *interesting* occasions when the female becomes all-important, and the lord of the creation sinks into a state of the uttermost insignificance."

LONDON AND PARIS STREET ARCHITECTURE COMPARED.

It would be difficult, says Mr. Burnell in his "Retrospect," to discover, at the present time, a more singular or a more instructive illustration of the reciprocal action and re-action of national institutions, and of national tastes, than may be found in the street architecture of the two cities, London and Paris!

Any one who may recollect the Paris of the days of Louis Philippe, must think of it as it then was, viz., as a city singularly ill-planned for the purposes of international communication; as a convenient stronghold for revolutionists in its more densely peopled quarters; as abounding in moral and physical plague spots; but, at the same time, as an extremely quaint and picturesque agglomeration of the arts and monuments of past times. The old streets were narrow, irregular in plan and in level, devoid of light and of air, but full of historical and archaeological interest, and marked by a distinctly local character, and, it must be added, by a distinctly local odour, consequent upon the defective state of the sanitary arrangements of the town, and upon the habits of the population. All this has been changed since 1849, as if by magic, and the inhabitants of Paris of 1848 would now be utterly unable to recognise, in the present capital of France, the city of their day. Wide, straight streets have been formed through the most densely peopled parts of the town, stretching on in interminable vistas "to the crack of doom;" large open squares for the convenience of the public have been formed in the parts of the town which were formerly the most devoid of light and of air; public buildings of the most gorgeous description have been erected, and though the majority of these buildings are more or less of a nature to connect them with ideas of servitude and compression (for they generally consist of barracks, mairies, guard-houses, and military posts), yet all the historical monuments which

have been brought to light by the recent demolitions, have been restored elaborately, if not always tastefully. The sides of the principal new streets have been covered by lofty and expensive structures; and to the superficial observer it must be confessed, that there is much in this metamorphosis of Paris, to justify the belief that "they manage these things better in France" than they do in their own country. For, with the exception of some partial improvements near Fenchurch-street, of the completion of Cannon-street, of some piecemeal improvements in the narrow thoroughfare of Newgate-street, in Fetter-lane, Fetter-street, Chancery-lane; of the new street from Covent Garden to Long Acre; and of the recently commenced street on the Surrey side of the river, the various municipal bodies charged with the dissection of the *sedility* of London, have done little for the improvement of the artistic character of the town, or of its hygienic conditions—in so far, at least, as the directions and the dimensions, or the architecture of the main thoroughfares are concerned. The London of 1862 will be found, externally, to be nearly identical with the London of 1851, and superficial observers, like Don Ochoa, in his recent work on "London, Paris, and Madrid," may fail to perceive the nature or the extent of the change which has imperceptibly passed over us. As to the utter overthrow of the plan of Paris, and the timid measures adopted here for the improvements of our great thoroughfares, it is to be observed that we, by no means, require to form new streets, as our neighbours did; and, indeed, Paris would require a dozen Rues de Rivoli before it could rival London in its salubrity, in so far as the latter can be affected by the direction of the streets. Still there is much which requires to be done to render London as convenient as it might easily be made, and more still requires to be done for the sake of the numerous classes who can hardly help themselves. Is the system our neighbours have lately carried into effect, at so frightful a cost, one which we ought to adopt here? Is it after all a system which is conducive to the moral or to the artistic development of the population affected? These are the questions it really behoves us to solve, for "the conversion of a city of bricks into a city of marble," is, after all, a bad compensation for the establishment of a system which involves the sacrifice of so large a portion of the vigour and energy of the population, as must be produced by the form of Governmental action which has accomplished the results to be observed in Paris.

NEW CARLISLE BRIDGE.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—It is a pity that your evident intention to promote judicial fairness in the Carlisle Bridge affair should be suspected as a "dodge." The information afforded by the DUBLIN BUILDER will tend to counteract "dodges" if there be any, and to afford a better knowledge of the merits of the various plans as adapted to the site in question.

In your number of August 15th, giving a view of Messrs. Page and Turner's one-arch bridge, the structure proposed is described by its authors as "a single arch of 140 feet width with a rise of 10 feet 6 inches." Now, when the curvature decreases thus much towards a straight line the structure loses, to a very great extent, the properties of an arch. To counteract this the authors of the design wish to give additional depth to the rib at its centre, thus decreasing the waterway. The "principles" of this design, the authors state, are, "that the structure should be of the most substantial and permanent kind." With due deference to them (the designers) these would not be the "principles" of such a design; and, although it is added, "detail drawings are submitted to inspire confidence that the bridge built on this construction cannot fail to be remarkable for its stability and excellence;" neither the one nor the other of these qualities are prominently manifested.

The bridge of one arch now in course of construction over the Ouse at York (which seems to be of *malleable* iron ribs of enormous depth), though it may seem grand as being of single span, dips down with its iron ribs some distance at either abutment into the water in order to afford sufficient curvature to make the arch efficient. That the purposes of river traffic or waterway required but one arch is surely carrying utilitarian purposes to great—not to say ridiculous—extremes. As a matter of "taste," of course it is almost impossible (or perhaps is not exactly proper) to attempt to decide, since "tastes differ" so widely, that whatever the width of a stream and height of abutments, and however immaterial to the nature and amount of river traffic, "one-arched ideas seem to be in the ascendant."

If the proposed Dublin bridge of *one arch* (or rather *curve*, for it will not be an "arch") be adopted, the ends of the iron girders will be down in the water, or the abutments will have to project farther into the river than those of the old bridge (those of Messrs. Page and Turner do so to more than *double* those of the old bridge), and even then, sufficient curvature cannot be obtained, so as to give the structure desirable stability and permanence, without interfering more with the river traffic than a bridge of 2 or 3 arches would do.

In this instance, with so low and flat a curve as a single arch would necessarily be, it would not be practicable at high water for boats or vessels of any description to get under the bridge near the abutments; whereas it can readily be seen by inscribing three segmental arches of good curve or a span of one arch, that this advantage is at once obtained, and, indeed, a better headway gained both at the shores and at a greater number of points between the shores, than by a single span. In fact, to throw one span, either curved or straight, across this space, and, at the same time, retain a level, or nearly level, roadway, would present a cumbersome and most unsightly mass between the river's embankments, whether considered in point of construction, economy, convenience, or architectural appearance.

It would greatly facilitate the decision of the committee if the one-arched idea were discarded. The approaches to the bridge are too near the water line, compared with the river's width to render it prudent to adopt one arch. What may be practicable is not always prudent. Bouldin may walk upon the tight rope once too often.

If the committee in this affair are anxious, as no doubt they are, to embellish and ornament this fine site, they will surely not adopt what looks something like an arch but is, in reality, no arch. As a picturesque and permanently pleasing composition, a bridge having three arches is far preferable. As to statues, every one with a grain of artistic feeling will admit, that a bridge of more than a single span would afford vastly superior opportunities for the display of the sculptor's skill, and the perpetuation by monument, statues, or inscription, of the memory of illustrious personages.

MEDIA VIA.

PERSONAL RESPONSIBILITY FOR RAILWAY ACCIDENTS.

WHEN those casualties—now-a-days unfortunately more matters of course than of surprise—occur, whereby human beings have their persons maimed, or probably lose their lives, the first questions started are "what's the cause?" "who's to blame?" an outcry is at once raised in each case against the company—which, no doubt, is responsible for the acts of its officials, from the chairman of the board to the humblest pointsman in the service—but redress comes too late, and in many instances, owing to want of proper definition of duty, and *personal* responsibility, culpability for consequences arising from neglect cannot be saddled on the right party. We believe it to be quite practicable to institute such an office as "chief accident preventer," (or under other title) in connection with every railway establishment, aided by a staff of special assistants, proportionate in number to the extent of the line and its branches, whose only duties shall be vigilantly and effectively to inspect the carrying out of the traffic arrangements, to see that proper diligence and steadiness are observed at the sidings and signal posts, that there are no apparent fractures in the bridges, viaducts, &c., no slips of embankments, or in cuttings probable, that the engines and carriages of the train are in a proper state for their work, as to boilers, axles, tires, &c.; that the rails, switches, and connecting rods are also suitable for their purpose, &c. We certainly do not go so far as to say that by this or any other course of proceeding all railway accidents can be prevented, (for they are necessary consequences of the existence of such establishments) but we believe that the number of such occurrences would be immensely diminished, the legislature providing for the holding up as examples by severe punishment of delinquents; a consequent guarantee of comparatively safe travelling being afforded to the public. We may be met with the assertion, that the duties enumerated as appertaining to such "accident preventers", are virtually those of the ordinary officials in each department, but it must be remembered that these latter have other duties likewise which render their responsibility less special, and less difficult to define in the event of neglect, than it would be under the system we advocate.

In the winter of 1860-61 many accidents (we learn from Mr. Burnell's recently published book, reviewed in last number) occurred on the English railways, from the great changes produced in the molecular structure of the iron used in the working part of the engines and carriages, especially in the tires, axles, connecting rods, in the rails, chairs, points, crossings, &c.

May not such causes be traced to incompetency or neglect somewhere, and could not the whereabouts of the fault be ascertained with greater facility if the "accident preventive" staff were established, than it possibly can at present, where responsibility is divided?

Touching this subject we may mention that somewhat recently travelling from Holyhead to London by London and North Western railway, we happened to be seated in a carriage one of the springs of which was broken, causing the body thereof to keep perpetually "bumping" against the axle-tree; and becoming, as the train attained great speed, perfectly intolerable; resembling the quickly repeated blows of a huge sledge-hammer against the framework. The unpleasant sensation, however, was nothing to the apprehension of "a break down," a smashing of the axle, or such like, reasonably entertained by the passengers. We, with our travelling companions, represented this to the officials at the stations, to the guards of the

train, but it seemed to be nobody's business, and was treated so lightly that the train being crammed with people, we were compelled to endure this martyrdom for the entire extent of the journey. If serious accident resulted who was to blame? The company, of course; but the culpable individuals escape "scot free."

CORK SCHOOL OF DESIGN.

THE annual inspection and examination of the works executed for competition during the year by the pupils of this school will be held on the 14th October and following days, under the direction of the government inspector. Its approach is heralded by the excitement and activity observable amongst the students, and a visit to the school, interesting at all times, is doubly so at present. The Art Gallery and adjoining rooms are filled with diligent students of both sexes, seemingly engaged *con amore* in works of varied character and utility, and in different stages of progress; they include careful and accurate studies of those majestic statues and groups which Cork has been so highly favoured as to possess; compositions in oil and water colors, of fruit and flowers from nature, figures, ornament and still life; drawings from Mulready's life studies—modellings from the cast and from nature; treatment of natural objects ornamentally, by resolving flowers into their elementary forms as subjects for designers and architectural and mechanical drawings—this last of a highly useful if not equally ornate character as the former, and an indispensable requisite for the builder, operative, and artisan. A School of Art, it should be remembered, to be efficient and useful in a locality, must embrace in its curriculum a varied field of operations in the specialty of art adapted to various classes of the community, and in this respect the school meets a want which had been long felt and acknowledged. Whilst the various classes are well filled and the general attendance large, the details of instruction, superintendence, and class lectures devolving on the master seem to be carried out with order, diligence, and efficiency. There are abundant evidences of careful manipulation and sustained industry in the number and character of the works in hand, and the students seem earnest, absorbed, and interested in their work. The arrival of the government inspector is an event which is always looked forward to with eagerness and anticipation, as that of one who, like Fortune, distributes prizes and rewards with either hand, not, however, with blind indifference, but with careful and discriminating favour. It produces a healthy and stimulating emulation—the more so on this occasion, as, in addition to the usual rewards of prizes and medals, and the higher honour of national competition, a sum of £20 has, with judicious liberality, been entrusted to the committee of the school by his worship the mayor, to be distributed in various sums as prizes for works executed by pupils of the school, in specific stages, which will be also awarded at the same time. His worship has given a further sum of £5 to be allocated in prizes to the lady pupils for original works to be decided at a later day. These are features of additional interest in the annual prospection, and impart a keener stimulus to the energies of the students. The subjects for local prizes, some of which his worship has himself suggested, embrace various stages of art, and are calculated to test varied gifts and acquirements. They include, among others, architectural drawing, plans and elevations of the Royal Cork Institution from actual measurement—designs for an Elizabethan cabinet—the Venus of Milo, shaded—with a special class of prizes for pupils of national schools and elementary students.—*Cork Constitution.*

MORTALITY AMONGST THE DUBLIN POOR.

THE census reports present us with the astounding fact that the mortality in the poorer parts of Dublin is threefold that in the richer. No such excessive mortality is found prevailing in the poorer parts of London, and why? because Government and Parliament have provided an excellent machinery of officers of health, inspectors of nuisances, registrars of deaths and the causes of deaths, with ample powers to care for and protect the public health. It is, we must incessantly urge, the paramount necessity for the immediate extension to this country of similar measures, providing every means for sanitary improvement for our Liberty, equally with the London St. Giles. The care for the health and welfare of the working classes in England extends to the factory and the workshop. Special inquirers and special legislation founded thereon, have secured for the English operative, and above all, for the minor and the apprentice, a protection, which, both in the letter and in the spirit, is highly desirable, and should be extended to this country, and to many trades not yet specially legislated for.

DRY ROT.

A CORRESPONDENT in Cork asks, "the best means for stopping Dry Rot in Floors."

[Probably some of our readers having practical experience can supply the information? No instance has come under our immediate notice.]

THE WESTMINSTER FRESCOES.

W^e (*Building News*) have little doubt that a large section of the public learn with astonishment, as well as regret, two facts in connection with the costly frescoes that have been in progress for years at the Houses of Parliament. The first, and of chiefest importance—so much so that it opens the question, whether it is desirable to continue the works—is that the frescoes completed already show signs of decay, and, if not really dropping to pieces, are in such a condition as to raise the liveliest apprehension for their permanence; and the second fact is the non-completion of the contracts into which they have entered by two of the five artists now employed. In the case of the Peers' Robing Room, an agreement was entered into, with Mr. Herbert, before the room was built, and years before he would be able to work in it; yet, on the completion of the room, in 1858, the cartoons were not ready, and since that time there has been considerable delay, attributed by the Fine Arts Commission to repeated experiments, and to a conscientious study of the subjects committed to him, rather than to any feeling of indifference, or to any interruption from other occupations. Besides, as we are assured by the chief Commissioner, Mr. Herbert has received no more money than he is entitled to, and some of the delay has arisen from the destruction of nearly 450 square feet of painting, with which he was not satisfied, and the value of which, at the estimate of £8 per square foot, amounts to about £3,000. No such excuse can, however, be pleaded for Mr. Dyce, who was engaged to paint the Queen's Robing Room, and who was, by the original agreement, allowed a fixed annual sum for a limited period, within which he undertook to complete the work. That period expired in June, 1855, the stipulated remuneration having been received by him, without, as it appears to us, the least reference to the amount of work done; an additional year, ending June, 1856, was granted to him, in consideration of his plea of loss of time while engaged as a juror and reporter in the Great Exhibition of 1851; and in 1854, on his application to have exclusive occupation of the Robing Room, the privilege was granted on the assurance that the work should be completed in June, 1857, a period afterwards further extended to the beginning of 1858. The work, however, paid for in 1855, still remains unfinished, and, we fear, is likely to remain so for some time.

These delays, however, are of far less consequence than the decay of the executed frescoes, which, putting the best face upon it possible, Mr. Cowper admits is "so extensive as to excite much apprehension." A committee of enquiry has been appointed to investigate the subject, and it is thought that the evil will be found to be in the colours, since the decay is most observable in those colours which are acted upon by carbonate of lime, and are most liable to adulteration. If this proves to be the true explanation (we are not sure that it will), what have the artists been about not to take care that they had colours supplied suitable for their work?

Twenty years ago, when the Queen appointed the commissioners on the Fine Arts to enquire what advantage might be taken of the rebuilding of the Houses of Parliament, for promoting and encouraging the fine arts in England, fresco painting had been very little practised in this country, and the practice was scarcely understood by Englishmen. A century ago paintings of this kind had been executed at West Wycombe Park, by G. Borgnis, a Milanese; they were exposed to the open air, and if still in existence would afford valuable information as to the effect of our climate on frescoes. But it was well known that many examples of frescoes had existed for centuries in Italy—among them the works of Avanzo at Padua, those of B. Giosoli in the Palazzo Riccardi at Florence, of Angelico da Fiesole, Masaccio, Perugino, Giotto, and others belonging to the fourteenth and fifteenth centuries, while the works of Luini at Saronno and Lugano, at least three centuries old, were remarkable examples of frescoes in perfect preservation. The works of Correggio at Parma are, at first sight, by no means favourable to a conviction of the durability of fresco; but their decay is clearly traceable to the influence of damp, owing to dilapidated roofs, and not to any error in practice, or natural want of the quality of durability—for part of a fresco in S. Giovanni, by the same artist, was removed during some alterations and inserted in the walls of the library at Parma, where it remains in perfect preservation.

Besides its lasting nature, it was considered that, as a mode of decoration for public buildings, this mode of painting had peculiar recommendations, no style being more clear, distinct, and effective at a distance, qualities partly preferable to the thorough execution, founded on the perfection of form which it requires, and partly to the brilliancy of the material employed for the lights, and it was determined that fresco should be employed for the decoration of a portion of the new building. But so little was known of the subject that, as a first step, it was necessary to ascertain from competent authorities in what manner the work should be proceeded with, and what precautions were necessary.

This was done, and the information thus obtained from Director Cornelius (who had executed considerable works at Munich), Professor Hess and others, together with an account of the various methods described by writers on art, must have served as the foundation of our present knowledge of the art, and also of the practice of our painters.

Fresco painting is attended with very considerable and peculiar difficulties. The work once dry, it is impossible to re-touch it to any extent: it must remain as it is, or be cut out and done afresh; therefore every part of the subject must be carefully considered, and drawn on paper, whence a part (as much as can be coloured in a day) is traced on the wet plaster, and at once coloured without re-touching. Re-touchings are useless in frescoes painted in the open air, being removable by water, while rain does not affect frescoes painted without re-touchings; and Vasari distinctly states, that frescoes that were not re-touched were least liable to alteration and decay. Has this fact been sufficiently kept in mind by our fresco painters?

With the old painters, the preparation of the lime for the *intonaco* or coat which receives the colour, was a matter for careful attention; and even the lime used at the Ludwig Kirche, by Cornelius, was prepared eight years before he painted on it. Generally the German painters allow three years to elapse before it is used. At Munich a pit is filled with clean burnt limestones, which, on being slaked, are stirred continually till the substance is reduced to an impalpable consistence, when sand is spread over it a foot in thickness, or more, so as to exclude the air, and then the whole is covered with earth for at least three years. The use of fresh lime would result in the work being covered with blisters, to the damage, if not ruin of the painting, as every one in any way connected with building operations well knows. If it be really a fact that the works of art in fresco at Westminster, like the building they are intended to adorn, are to crumble to pieces before the eyes of the artist who produced them, the sooner we know it the better, that further waste of money may be avoided, and that a mode of decoration may be adopted which will be, if not a "joy for ever," at least something that we may reasonably hope to bequeath to the next generation.

PROPOSED SUNDAY OPENING OF THE BOTANIC GARDENS, EDINBURGH.

THE following is the substance of a petition, addressed to the Lords of the Treasury, with a view to the accomplishment of the above object in which, considering that the circumstances are parallel with those connected with the recent Glasnevin Gardens movement, which terminated so triumphantly for the working classes of Dublin, we feel a special interest:—

"That the Royal Botanical Gardens of Edinburgh, established and maintained for the advancement and diffusion of useful knowledge, and for the improvement of the people, are mainly supported by annual grants out of the taxes, of which the industrial classes pay their proportion.

"That your petitioners are chiefly working-men, whose labours and necessary domestic and other duties leave them little or no opportunity to visit the said gardens during the working days of the week, so that very little benefit from this valuable public institution is within the reach of them and their fellow-labourers, who form the majority of the citizens of Edinburgh.

"That a Select Committee of the House of Commons, in 1854, resolved: 'That it was expedient that places of rational recreation and instruction then closed, should be open to the public on Sunday, after the hour of two o'clock, p.m.; and that so far as any such places were then closed by operation of law, such law should be so far amended as to enable the lord chamberlain or other competent authority to determine what places should be permitted to be so opened, and for what length of time.'

"That there is no law against the opening of Botanical Gardens on Sunday; and, in the opinion of your petitioners, no kind of recreation and instruction can be more rational than that derivable by working-men and their families from visits to such places.

"Not only will they thus be led to take wholesome exercise in the open air, but their tastes will be elevated, their manners improved, their knowledge of the works of nature increased, and their devotional feelings nourished and stimulated.

"That the museum and gardens at Kew, and the picture galleries and gardens of Hampton Court, have long been open on Sundays; and that recently, the government required that the Botanical Gardens of Dublin—which, like the Edinburgh Gardens, are mainly supported by public money—should also then be thrown open.

"That these institutions are highly appreciated and extensively visited on Sundays by working-men and their families, whose conduct has been most exemplary, and some of whom have no doubt been thus kept from less beneficial modes of spending their time."

THE PROPOSED NEW CARLISLE BRIDGE.

WE have received a host of letters from all parts of the kingdom, complaining of the unprecedented delay in deciding this matter; month after month elapsing, and no result being arrived at. Two of the referees have, as we understood, left town for some time, and until their return nothing can be done. With all respect for these gentlemen, and regard for their onerous official duties, we feel bound to admit that they should not have undertaken this office if they could not devote time—and promptly too—to its attention. The gentlemen who have expended a vast deal of time and labour on the drawings submitted in this competition, naturally expected that the decision would be made known within a *reasonable* period, but that long wished-for event seems positively to be adjourned *sine die*, and we cannot, therefore, wonder at the feelings of dissatisfaction so generally expressed. In plain truth, if we did not know that the Committee comprised gentlemen incapable of unworthy action, we should at once conclude, that a *flagrant breach of faith* had been or was being perpetrated. That it is *not* so, however, we are sure that we may promise the competitors, who, to say the least, are entitled to some *official* explanation as to the cause of delay.

We herewith—according to promise—give an illustration of one of the designs for a *stone* structure, without pronouncing any opinion on its merits; one of our reasons (in addition to those already stated in last Number) for presenting such illustrations as this, and the one for an *iron* structure, included in our Number for August 15th, being, that competitors at a distance may have an opportunity of seeing, at least, *some* of the designs submitted; and to evoke comment.

PROTECTION OF INVENTORS.

In a small pamphlet, entitled "*Brief Meaning*," and recently issued from the press, we find the following on this subject:—

"For the encouragement and protection of men of genius, inventors of new designs and plans, two or three Government Commissioners should be appointed in London, Dublin and Glasgow, to receive condensed statements of new inventions; the inventor to produce two copies of his plan, with models or drawings, one copy to be signed by the inventor, and left with the Commissioners, the other copy to be signed by the Commissioners and returned to the inventor, each copy to be dated as a guarantee for right of patent if shown to be original, a fortnight's public notice to be given, in a few words, of the proposed invention. That any person claiming a previous right to same invention shall appear on a fixed day, and prove on oath, and a clear statement and plans, that the invention originated with him; should he fail, the first proposer to have full protection in law. No person proposing an improvement to be allowed a patent, but to have protection until he can complete an arrangement with the original patentee. A large amount of revenue might be collected by a duty payable on the profits arising from successful patents, and on the amount received on granting licences to manufacture in cities and country towns."

FACTORY PROGRESS OF LONDONDERRY.

AMONGST the numerous features of interest in the "*Maiden Cille*"—and to which reference was made some months since in our "*Survey*"—are the vast industrial establishments whereby extensive employment is afforded in shirt manufacture, which is one of the staple trades of that important city.

The firm of Messrs. Tillie, Henderson, and Co. are the principal in that branch, and so increasing is the demand for the supply of their manufacture, the former named partner has just caused a new and substantial factory to be erected on a very eligible site on the Foyle-road, situate between Bennett-street and Ferguson's-lane. The structure is thus described by the local *Standard*:—

"The main building, which is four storeys in height (the upper one being lighted entirely by skylights), is capacious, thoroughly ventilated, and well lighted, having a frontage of 120 feet, and extending 30 feet in depth. In addition to this, there is attached a machine room, with a double roof—nearly all glass—and capable of accommodating 300 workers. In this department there are at present nearly 200 machines of the most approved construction, driven by steam. The stands of the machines are of iron, which ensures their safety to a large extent from fire. The shafting is all placed underneath the floor, so that no accident can arise from the garments of any of the workers coming in contact with it. The machines are neatly arranged in rows along the room, and when running have a very pleasing effect. Each machine is put

in motion or stopped in an instant by a separate foot-spring, which a child could control. The whole are driven by a six-horse engine, capable of driving one thousand machines if necessary. The cranks connected with the shafting are all arranged outside the building, so that their unpleasant jarring sounds while in motion are unheard by the workers within. Mr. Tillie seems to have done everything in his power to ensure safety and facility to his employées, who evidently appreciate his unceasing exertions to advance their individual comfort. Mr. Tillie has also secured in the rare sufficient space to secure double the quantity of buildings if required. Mr. Alexander M'Elwee, the contractor, deserves much credit for the unprecedented rapidity with which he erected the factory and adjoining buildings, having completed the whole in the short space of thirty-six days. We may also state that, such is the flourishing state of trade at present with this eminent firm, that, in addition to the above, they have two other large buildings in this city temporarily occupied, until they can secure more suitable accommodation. In fact, we understand, that the shirt business is generally in a healthy state—there being, at the lowest estimate, about 1,300 girls alone employed in the various factories in Londonderry, besides nearly double that number who receive work at the different country stations convenient to this city."

THE O'CONNELL MONUMENT AT CLARE.

It seems that the pedestal of this structure is completed and fixed, and that the statue is nearly ready to be handed over by the sculptor, but that the requisite funds for payment to the latter are not forthcoming. The "*Freeman*" makes an emphatic appeal to the public for *one hundred pounds*, and in response thereto some parties come forward daily with a *few pounds*; but it is to be hoped that the work will not be allowed to remain much longer in abeyance for want of the paltry balance. Apart from all political considerations, O'Connell must be regarded as a national celebrity, and it would be a disgrace to Ireland and the Irish, if the sum requisite to complete this work were not forthcoming. Surely, where it was found practicable to raise, in the metropolis, a sufficient amount for a memorial to a deceased surgeon, whose merits chiefly comprised professional eminence within a comparatively limited sphere, it ought to be much easier, by the united contributions of a nation, to erect a *handsome and costly* testimonial to a most remarkable man in an epoch—a distinguished statesman, orator, and lawyer. Yet about *ninety pounds* are *still* wanting to complete a very *inexpensive* structure to the memory of O'Connell.

THE WATER WORKS.

THE Water Works Committee opened their tenders on Thursday last, and it is understood that they accepted that of Mr. M'Cormack, M.P. for Derry. It is said that Mr. M'Cormack's tender includes the entire of the works, and covers "all extras," and that it was in amount below each of the estimates separately made by the engineers, Sir John Macnall, consulting engineer, and Mr. Neville, city engineer. The pipes are to be cast at the foundry of Messrs. Eddington and Son, Glasgow, who supplied the pipes to Mr. Bateman for the Loch Katrine Works, and to Mr. Hawksley for the Liverpool works.

THE PROPOSED WINTER GARDEN.

WE understand that the committee have received a large number of designs for this building (submitted in competition for the prizes offered by advertisements a short time since in this journal), forming such a collection of beautifully-executed architectural drawings as was never before seen in this city. Some eminent London and English provincial architects are competing, as well as about a dozen of the local practitioners, and others from the Irish provinces. It is thought that the drawings, which are at present being hung, under Mr. Cranfield's direction, in the gallery of the Royal Irish Institution in College-street (the Carlisle Bridge designs having been removed), will not be exhibited to the public until after the decision. This would be a very uncommon proceeding, but we are not disposed to question the fairness of it, for many reasons.

THE GRAND CANAL.—The Engineer, Mr. Christopher Mulvany, reports that "the several works of the Canal, its branches, and supply-courses are in a good state of repair. The repair of the works in each case receives very great attention, endeavouring, as far as practicable, to obtain stability with economy of expenditure. There are no new works to be done during the present half year requiring special mention. Nothing more is contemplated than the ordinary repairs incidental to the use of the Canal, and those necessary to counteract the effects of time."



COMPETITION DESIGN FOR PROPOSED NEW CARLISLE BRIDGE—MOTTO, "IN MEMORIAM."

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ON THE APPLICATION OF GLASS TO THE ARTS.*

ANCIENT glass painting is usually divided into four periods, a different style being assigned to each. The earliest style commenced in the twelfth century, and extended to nearly the end of the thirteenth. It is marked by strong characteristics, not easily mistaken by the glass painter. In figure glass of this period, very rich and strong colour was almost invariably used. Scriptural subjects and legends were represented generally in medallions, and the spaces between these medallions were filled with rich diaper or scroll work. The groundwork of the window was generally darker than the medallions, and the whole was surrounded with a broad border of elaborate conventional ornament. Many beautiful examples of this style of glass painting exist on the Continent, and some in the old cathedrals and parish churches of England. A large work was published some years ago by *Peré Martin*, a French Jesuit, illustrating the glass of this period by engravings of the old windows in Bourges Cathedral—an inspection of which will amply repay those interested in stained glass, and will also teach clearly the principles on which the first glass painters worked. Those who have visited the Chapel of the Palais Justice, in Paris, will remember the great richness of its stained glass, its depth of colour, the great distinctness of the colours, and the absence of anything approaching to gaudiness. Perhaps at no period was harmony of colour and arrangement so well understood as in the thirteenth century. The only objection to this style is that the subjects are and must necessarily be small, and therefore indistinct in large churches, where they are viewed from a distance. The predominant colours are blue and red. The blue is peculiarly beautiful, and like the sapphire in colour; the ruby is uneven in tint—crimson, not scarlet, but very rich in colour. It is owing to the peculiar texture of the glass that the colours do not blend, and form compounds. At a short distance a thirteenth century window seems almost to be made up of jewels, so brilliant and sparkling is its effect. The yellow glass of this period is pot metal; silver stain was never used, and therefore one never sees an orange tint. Pinks, purples, and greens are freely used in the draperies of the figures and in the ornaments, but seldom in the backgrounds; and white glass is often beautifully distributed in small quantities very evenly throughout the window. The white glass of this period is generally of a bluish or greenish tint, but, from its position among other colours, appears white. The iron work supporting the windows in their places is always strong, and takes the form of the medallions, and serves to mark out the leading forms boldly. The lead work, too, is well studied, and strengthens, but never interferes with the outlines of the figures or ornament; it is strong, but very narrow, and rounded. This style has been termed the *Mosaic*—a very proper name for it—because its windows consist of a number of small pieces of glass leaded together, and on this arrangement depends its peculiar character and effect. Strong outlines give the forms to the figures, and they are but little assisted by the shading; the same treatment is adopted with regard to the ornament. The shadows are for the most part smeared, and in places strengthened by cross-hatching; stipple shading is never used; hence, the transparent and brilliant effect obtained. The figures are, for the most part, badly drawn, but well conceived; and the subjects are well grouped, and full of religious feeling. Perspective effects were never attempted, so that the groups are clear and distinct, the backgrounds of which are generally blue, the figures being of lighter colours; nor are the backgrounds of the subjects diapered, as in the later styles.

Another treatment of windows of this period consisted in the use of scroll work springing from the trunk of a tree, and forming medallions, in which was represented the genealogy of our Saviour, other figures were introduced in various parts of the light. The upper windows of the church generally contained large single figures, the subject windows being placed lower and nearer the eye. The drawing of these figures is very bold, the outlines clear and firm, the colours well arranged, and the expression of the faces and the attitudes of the figures showed by what deeply religious and artistic feeling glass painters were then inspired. Pinkish glass was frequently used for the flesh, and in some instances white. Single figures were usually placed under canopies which were small and stunted, the various parts of which were marked by different coloured glass, and, as in medallion windows, the prevailing colours were blue and red. The ornament of this period was purely conventional. On back grounds of blue or red, scrolls consisting of various coloured pieces of glass were painted in bold outline, and very slightly shaded. The usual termination of each portion of the scroll was either cinquefoil or trefoil. Borders were broad and rich, and in most instances very elaborate; white glass was used with great judgment in borders and pattern work. An ornamental pattern window in this style is, perhaps, one of the most beautiful works in stained glass which can be conceived. It has been before remarked that great care and attention was given to the lead work; whole windows, which have been the admiration of ages, derive their effect from this. The five windows in York Minster, called the five

sisters, are exquisite specimens of pattern work defined by lead; there is little or no colour in them; they are composed almost entirely of white glass. Indeed, this system of glazing appears to have been very common in the thirteenth century; and many old examples remain of white glass windows, either in quarry or scroll work, with coloured borders, and small pieces of coloured glass introduced in various parts of the ornament. On the whole, the stained glass of this period seems to be the most beautiful and artistic of any of the four styles which prevailed from the thirteenth to the sixteenth centuries. A careful study of it in all its parts will amply repay any student, and will fix in his mind those principles, by the cultivation and working out of which he can alone attain excellence as a glass painter. The principal characteristics of this style seem, then, to be—first, translucency and brilliancy—even the shadows are transparent; secondly, perfection in the management of colour and tint, as regards contrast and evenness of effect; thirdly, boldness and precision in drawing figures or ornament; fourthly, deep religious and artistic feeling; fifthly, attention to every detail, and the making everything necessary to the construction of a stained window, contribute to the beauty of its effect. Towards the close of the thirteenth century a change began to take place in the style of glass painting—gradually natural forms of leaves took the place of the conventional ornament then in use, and a very different treatment of subjects, figures and ornament, was adopted; not that this change took place at once, for early conventional and natural forms are frequently found together in windows executed about A.D. 1290; but the change became so marked and decided, and the windows so different from earlier works. The style adopted at the close of the thirteenth century, and which prevailed till near the end of the fourteenth, has received a distinctive name; it is called by some the *Decorated*, and by others the *Middle Pointed* style. There was a severity about the thirteenth century work which almost entirely disappeared in this style, the arrangement of forms is more free and the colouring more varied; the introduction of silver stain is also a mark by which to recognize work of this period; at least, where it is present, it proves that the glass was not painted before the end of the thirteenth century. Larger pieces of glass were used than in the former style, and the general effect produced by form and colour was so different from earlier work that it is easily distinguished from it. The employment of natural forms in foliage gave greater freedom; the leaves of the ivy, hawthorn, oak, and of other trees and plants was continually used; borders were narrower, and consisted of stems with leaves of different colours, with backgrounds of rich colour; sometimes the stem was straight, at others curved; a line of white glass separating the window from the stonework in which it was fixed. In the thirteenth century the canopies placed over single figures were low, stunted and very plain, but in this style they were large and very lofty, frequently higher than the figure beneath them, two-third parts of a light were often filled with canopy work; the forms of canopies were very good, the various members were in coloured glass; pinnacles, crockets, &c., being generally white, enriched with yellow stain backgrounds to figures, and behind canopies were diapered with small patterns, which greatly enriched the colours of the glass. In the earlier part of this period the glass was similar in texture to that of the thirteenth century, so that early decorated windows look as rich as their predecessors; later the ruby became thinner in substance and more even in tint, the colour of the blue glass lost somewhat of its richness, the white glass was of a yellowish green tint, and received from silver a very strong stain, almost as deep, in some instances, as ruby, though not of the same colour. Subjects were placed under canopies as well as single figures, and also in panels; the drawing of the figures was perhaps better than in the former style, the execution more careful, and the finish higher; the draperies were full and flowing, the religious and artistic feeling did not surpass that of the thirteenth century. The windows were secured in their places by iron bars fixed in the stonework and placed across the lights, the lead work was good, and concealed as much as possible by being used in the folds of the drapery and as outline. Though different in effect, from different treatment, the glass of the middle pointed period was very grand and beautiful, a careful study of its characteristics is most important, as shewing the judicious use and perfect knowledge of materials possessed by the glass painters of that age, and will be useful in helping those who do not wish to be simply imitators, to produce works suited to the taste and feelings of our own times. Indeed, as the student in art studies minutely, and draws from the antique to accustom his eye to true and graceful forms, and to give his hand precision, so must the artist in glass, not only do this, but he must learn from extant works those true principles which are applicable to the branch of art which he follows. In doing this he will learn what to avoid, as well as what to imitate; he will endeavour to copy and reproduce all that is beautiful, but will not be led into the error of perpetuating what is imperfect; he will strive to imitate the rich, beautiful and harmonious colouring of the glass of the two first centuries; he will endeavour to equal the true arrangement of form, the precision and force of outline, and,

above all, the *sentiment* of the early glass painters, but he will not copy the almost grotesque forms of the figures, he will not confine all his attention to reproduce draperies, irrespective of that to which those draperies but lend their aid; he will endeavour in representing his sentiments and conceptions, to render those figures which are necessary for such representation, as like human beings as possible, and will glory in *dignifying* not *distorting* the human frame.

[To be continued.]

LONDON BRIDGES.

THE construction of the Thames embankment will render it desirable that the whole question of London bridges should be reviewed and investigated in its entirety at an early date. For unless that is done, and provisions made to meet the altered régime of the Thames, due to increased scour and alteration in the direction of the currents. Londoners may awake some fine morning, to find three of their bridges down, and the foundations of others undermined. The reader can more easily imagine than any pen can describe, the consternation that would seize on all classes of the inhabitants if such a catastrophe were to take place. The bridges whose foundations are insecure, and believed to be unable to resist increased scour, are Waterloo, Blackfriars, and Southwark. Engineers declare them liable to go at any time with a deepening channel, such as we shall have after the embankment is completed. The proprietors of Waterloo are nervously alive to the dangers which threaten the Surrey arches of their structure. Blackfriars is propped up; and as to Southwark, is not Robert Stephenson's opinion on record, as to the ignorant and unscientific way in which it was designed and erected—the ignorance which made no allowance for the expansion and contraction of iron, according to the variations of temperature, and which have resulted in the splitting and fracture of nearly every part of the fabric? Even London Bridge itself is not considered positively secure, and it will be remembered, that the late Mr. Rendel, together with Mr. Simpson, declared that new Westminster was not founded deep enough to place the supports of the piers below the level to which the action of the scour might penetrate hereafter, and during the time the edifice might be expected to stand. Although the anticipated scouring effect of a contracted channel may have been exaggerated, and we believe Mr. Page's design will attain the average duration of existence of like works, the dangers to the three bridges named above, remain the same. We do not mean to assert that they will tumble down into the bed of the river before a certain date; but if they are allowed to remain as they are, such an occurrence comes within the range of probabilities. Or if they do not collapse into heaps of rubbish, they are still more liable to crack, from subsidence of the foundations, and become impassable, while they will at the same time seriously impede the navigation of the Thames.

Let us see how they have been built.

It certainly does not argue much for the activity of the trade of London, nor for the prudent attention of the inhabitants to its requirements, that, during the whole of the Middle Ages, and indeed until about a century ago, there should have been only one bridge over the river. Ancient Rome had eight, and Paris, under the reign of Henry IV., had six. Even as it was, old London Bridge could have afforded but very slight accommodation to traffic, until the houses that were built on it, and encumbered the way were pulled down in 1760. It was a curious quaint structure, such as our grandfathers may have beheld before the alterations were made by Dance and Taylor, and as the old curate of Colechurch designed it. Hawkesmoor says the river here was 900 feet across, and that the waterway below the starlings was no more than 190 feet—no wonder it acted as a dam. It was 926 feet long, 20 feet wide, and was 40 feet high in the centre above the water level. It had 20 arches, carried on piers varying from 25 to 34 feet in thickness; a chapel in the centre and at each end a fortified gateway, which was generally well garnished with heads of so-called traitors. So difficult were the approaches, that when the houses at the Southwark end took fire, at the commencement of the thirteenth century, and those at the north end were fired, upwards of 3,000 people perished. The roadway, passing between two rows of houses that shut the river out from view, was not only troublesome, but dangerous, says Stowe; and to augment the dangers of this middle passage, a market was held at one time on the bridge. A curious feature in the old edifice was the enormous thickness of the superstructure. The roadway was 8½ feet above the crowns of the arches, and had apparently risen by the accumulations of five different strata, one of which was composed of burned wood, the *débris* of the houses that had been destroyed by fire. The foundations were very defective, and it is really surprising they held together so long. The masonry was but 2½ feet below low water mark, and rested on oak planking 16 inches wide by 9 inches thick, which in turn was supported by a mass of Kentish rubble, mixed with chalk and flints, thrown in and held together by starlings. Parts of the piers had been faced at some early period, but very ill and carelessly, and no part of the original work rested on piles.

Although in subsequent bridges bearing piles have been used, it is not improbable that their absence in the old bridge was the cause of its standing so long; for, after all, piles do disturb the ground and break it up, when compact as London clay is. In new London Bridge the masonry of the piers rests upon 6-inch beech planking, laid on two rows of horizontal sleepers, about 12 inches square that cover the tops of piles driven 20 feet into the London clay. The foundations of Waterloo are also supported on beech and elm piles, of the same size and depth as those of London Bridge, having sleepers at top to hold them together, to which a timber flooring was spiked. The piers of Southwark Bridge are seated on the clay, we believe, but are enclosed by timber sheet piling. Blackfriars was built on fir piles; and as for old Westminster Bridge, its novel system of founding was a failure from the first, but whether that was due to Labeyrie not using piling to the piers, or to his caissons, cannot be satisfactorily determined now. It is for this reason that it will be desirable to watch the behaviour of the piers employed in Lambeth and Charing Cross bridges; for if they are found to stand well, and to afford no indications of settlement, bridges may be built over the Thames at comparatively trifling cost, and without impediment to its navigation. London Bridge, with the approaches, cost nearly two millions, while Mr. Barlow proposes to build one of his wire suspension bridges at Tower Stairs for something like £50,000. It will not be much larger than the Hungerford Chain Bridge, which cost £180,000. Certainly if this gentleman is successful, and enabled to construct the two other bridges which he has suggested at Paul's Wharf and Essex Street, London's want of bridges will be pretty well remedied; but unfortunately they will levy tolls, and there will be only three toll free. Now it is really unworthy of a city like London, that tolls should be taken within its limits; for they are a serious tax upon traffic, and tend to divert it from its natural channels. The money which the corporation proposes to spend in erecting Mr. Cubitt's design at Blackfriars, would suffice to erect five according to Mr. Barlow's system. Surely it would be better, until after Lambeth Bridge has been open some time for traffic, to ascertain the stability of the structure, and, if found satisfactory, to adopt the new system of construction, in order to give us half a dozen new bridges in the place of one.—*Building News*.

REST FROM TOIL.

A FREE Sunday, as a day of rest and recreation, is, for the working classes, one of the first of the secular blessings conferred on them by Christianity and modern civilization. Between the condition of the man compelled to toil without ceasing from morn to night, day after day without intermission, and the condition of the cart-horse, the difference is but little; both must work till nature requires, and must have sleep; both work till, at the appointed interval, food must be taken, as coal is thrown under the steam-boiler to provide the animal or machine with motive power. *Both eat and sleep but to live, and LIVE BUT TO WORK.*

But a free Sunday is not necessarily a day for torpid inactivity—a day for lying a-bed, or for drowsy half-mile walks, or for beery loungings in taverns or at home. The "day of joy," according to Tertullian, should be a day of innocent recreation, and therefore we must away to the greensward, to the sea-shore, to the wild woods, or the hill-top, if we would enjoy this "holy day" as the good Giver designed, in the recreation and improvement of body and mind, and in acquiring the freshness and vigour necessary to the fit performance of our duties on the working days of the week. This being so, it must follow that there are certain occupations in which Sunday work is necessary and indispensable for the public good. Railway trains must run to carry the people from the pent-up lanes and alleys out into the country. Policemen must be at hand to preserve order, and arrest the criminal, who otherwise would make Sunday the chief day for crime; and hotels and taverns must throw open their doors, after hours of service, for the hungry and weary traveller. In these and similar cases it is perfectly plain, that unless some few laboured on the Sunday, the many could have neither rest nor enjoyment, and society, in these cases, is bound to compensate those necessary labourers, by providing for them rest and recreation on some other day, when the many are at work. Although we cannot pretend to hope that anything so millennial in character has been as yet attained as the systematic carrying out of this scheme of compensation, we may, however, say that something of the kind does very commonly happen, and that the Sunday waiter or railway guard has his "Saint Monday" to enjoy himself, with the Sunday policeman, sent on some light "detective duty" into the rural districts; and that the further extension of this kind of compensation is provided for and secured by the fact, that it is only on Sundays the extra labour is required, and, with fewer trains and fewer visitors during the week, a holiday for railway officials, waiters, &c., should follow almost as a matter of course. The omnibus drivers and guards, car and cabmen, *never* have a holiday, Sunday as well as week-day being with them a period of incessant work.

Compositors and others engaged in the printing offices of the morning news organs, and the bakers who make our daily bread, are each compelled to work on portions of the Sunday. Whatever chance the latter may ever have of freeing themselves from this imposition, the former, we fear, have none; for social progress itself would be an inveterate enemy, in their case, to "rest," for obvious reasons. With bakers, however, the case is quite different; they work on Sunday, not for the necessities of the public, but for its luxuries, not because their labour on Saturday would prove unequal to the requirements of Sunday and Monday simultaneously, but because it would not suit the palate of individuals who must have "hot bread" for their breakfast on that as well as every other day in the week. In Glasgow, Edinburgh, and other cities in Scotland, it has been proved to demonstration that Sunday labour of the baker's trade may be abolished; and that, even if a deficiency existed in the Saturday's supply, by commencing early on Monday morning a quantity of bread could, in two hours be baked, sufficient to supply a meal for a populous city. The process of fermentation, as at present practised in Irish bake-houses, would, however, prove a bar to this; but if the desired result be practicable in Scotland, why not in Ireland?

TOWNS' SURVEY—No. VI.

BALBRIGGAN.

DURING the last ten years or so, this once celebrated manufacturing town has undergone considerable changes for the worse, and although still there are symptoms of vitality, a retrograde rather than a progressive movement is manifested, and the whole of the town is little better than "the shadow of its former self."

In the process of weaving there are still some 400 looms employed, the produce being fustians, checks, jeans, &c., and in the department of "hosiery," about 40 frames are constantly at work in the factories of Messrs. Smyth, Wilson, Appleyard and others, the excellence of whose manufacture still triumphantly maintains its position against all attempts at rivalry. The population is at present a little over 2,000, inhabiting about 500 houses, a large number of which, however, are but mud and thatch cabins, chiefly occupied by those engaged in the fishing trade, which is carried on to some extent, and serves a daily supply to the Dublin market.

The imports consist of coals, salt, and bark; and the exports, corn, meal, and flour. Partly owing to the exertions and influence of the late Rev. George Hamilton, who contributed a large sum thereto, a new pier, 420 feet in length, and with a curve of 105 feet, was erected at an expense of £3,000, for the improvement of the harbour, which is capable of receiving vessels of 150 tons burden, at three-quarters tide. A very important work in the erection of the Bockabil lighthouse, near this portion of the coast, but completely isolated some miles out in the sea, was performed a couple of years ago by Mr. Burgess, contractor under the Ballast Board, and no doubt has, by its brilliant flashes, saved many lives, and much valuable property. We were unable to glean any items of building progress in the town, except of a new dwelling house, erected by Mr. John Baker, J.P., at a cost of about £2000, under Mr. Symes, architect; a gallery being added to the church, and the conversion of a large block three storeys high, in the main street—formerly used as a bakehouse and store—into a residence for Mr. Edward Murphy, a local trader. For this latter Mr. J. J. Lyons is the architect.

We must not omit noting that notwithstanding its retrogression in other respects this town enjoys the luxury of "gas," the necessary apparatus for which was supplied by Mr. Daniel. Let us hope that ere long we shall be permitted the opportunity of recording some other items of progress in Balbriggan.

THE CRAMPTON FOUNTAIN.

WHEN we drew attention, in a recent number, to the incomplete state of this structure, it would have been but reasonable to expect a speedy remedy of the defects complained of; but not so, and in its present condition, instead of being "a boon" to the thirsty public, it is quite a nuisance. There are still no cups provided. The water dribbles and spurts out of dolphins' mouths into shells. These shells have perforations, intended to throw such water as they catch back to its source, and would probably prove efficient if there was a uniform jet supply to each. While on this subject we may ask, why has the pillar fountain on City-quay been rendered useless? It was a great acquisition to the inhabitants of the vicinity, to the coal-porters, and others that frequent it. It would seem that in recent sewerage works the Corporation cut off the sewer into which the surplus water flowed, and having done so, stopped the supply to the fountain. Well done, Corporation! Well done, potent declaimers of water pure and plenty! Will this be remedied? and if not, why not?

THE DESIGNS FOR NEW CARLISLE BRIDGE.*

IN consequence of the drawings having been unexpectedly removed, to make room for those for the intended "Winter Garden," and not being now accessible, we are unable to furnish particulars of the designs referred to underneath, and which conclude the list; but we may observe, that Nos. 44, 55, 58, 59, and 60 are remarkable for excellence both as to the nature of the suggestions conveyed, and the highly-finished execution of the drawings. The "designs" submitted by a couple of others are so extraordinary, that assumption of the authors' approach to that period when man enters on "second childhood" would be justified.

No. of Design.	Name or Motto.	Address.	No. of Drawings in each Design.	Material.	Estimate.
44	May & Pole	London	2	Iron	£41,256
45	L. E.	—	1	Iron	48,000
46A	Thomas A. Kelly	Dublin	5	Iron	43,000
46B	Ditto	—	5	Iron	47,000
47	James Boulger	—	4	Iron	25,000
48	E. M.	—	2	Iron	—
49	"Avanti"	—	4	Iron and stone	43,000
50	J. W. Grover	London	4	Stone	24,000
51	"Rex"	—	2	Iron	47,860
52	G. and S. Phipps	—	3	Iron	39,270
53	"Pro Palma"	—	3	Iron	37,900
54	"Labor omnia vincit"	—	2	Stone & Iron	34,000
55A	A. Pallas	Dublin	2	Iron	43,000
55B	Ditto	—	2	Iron	43,000
56A	"Second to none"	—	3	Iron	44,897
56B	"As you like it"	—	3	Iron and stone	35,752
57	W. Wilson	London	4	Iron	42,000
58A	May & Pole	—	3	Iron and stone	57,139
58B	Ditto	—	2	Ditto	42,771
59A	A. M. Barry	—	3	Ditto	50,000
59B	Ditto	—	3	Ditto	50,000
60	J. Neville	Dundalk	5	Iron (under)	50,000
61	F. W. Clarke	Dublin	1	Iron	40,000

THE FIRE BRIGADE SUPERINTENDENT.

AT an examination of candidates for this office, held on Friday last, Mr. Ingram was declared *first*, Mr. Hort *second*, Messrs. Acheson and Hodgkins *third*. These gentlemen have been recommended in this order to the council, who, in all probability, will appoint accordingly.

NEW PATENTS.

LIST of Letters Patent which passed the Great Seal on the 22nd and 29th August, and 5th September, 1862; Messrs. Byrne and Lambert, agents, 4, Lower Ormond-quay, Dublin:—

P. D. Ayemar, for "An improved mechanical arrangement for the winding up and setting of the hands of watches by means of the knob of the pendant."

S. Cheavin and Son, for "Improvements in filtering and purifying water, and in apparatus employed therein."

J. G. Appold, for "Improved apparatus for regulating the discharge of water and other liquids, and air and other gases."

J. G. Jennings, for "Improvements in the construction of chimneys or flues."

T. Tilman, for "An improved method of purifying gas."

A. R. L. M. De Normandy, for "An improved method of connecting gas and other pipes."

J. F. Milward, for "Improvements in breech loading fire arms."

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J. Cumming, for "Improvements in the method of, and apparatus for distributing and setting up type."

* Continued from page 216.

DUBLIN CATTLE MARKET.

THE following forms portion of the first report of the Directors of the Dublin Cattle Market Company, to be submitted to the shareholders, on to-morrow, at two o'clock:—

"The directors have to congratulate the shareholders on the success of the application to parliament for the establishment of a free and enlarged cattle market at the North-wall. Directly after the act received the royal assent, the directors lost no time in carrying out its provisions; and they have much satisfaction in stating, that great progress has been already made in the execution of the necessary earthworks, in order to bring the surface of the market to the formation level of the Liffey Branch Railway, from which it will be separated by a cattle platform only. Whilst your directors cannot but deprecate the opposition to the bill, which was organized by the joint efforts of the Corporation and the salesmasters of Smithfield, they can scarcely regret the circumstance, as their original views, in reference to the suitability of the site, have been completely borne out by the result of the protracted inquiries which took place before the committees of both houses of parliament. The position of the new market presents all the requirements which a royal commission, as well as a select committee of the house of commons, reported to be indispensable in the selection of a site for the Metropolitan Cattle Market in London. 1st—It will be convenient to the leading railway termini, and within four hundred yards from the quays, whence all the cattle are exported. 2nd—It will afford adequate provision for lairage, for slaughter-houses accessible to the public, and for the creation of a wholesale dead meat market. 3rd—The character of its neighbourhood is such that it will afford facilities for future enlargement; whilst all those advantages will be secured without any public inconvenience, inasmuch as Carlisle-bridge (the most central point of traffic in the city) is nearly equidistant from Smithfield and the proposed market. Since the passing of the act steps have been taken for effecting a junction, during the ensuing session of parliament, between the Great Southern and Western and Midland Great Western Railways, by the construction of a short branch of about two miles in length. When this junction shall have been effected, the cattle traffic of the greater portion of Ireland (with the exception of that trifling quantity conveyed over the Wicklow line) may be considered as concentrated at the new market, from whence the local wants of Dublin, as well as the large and rapidly increasing export trade, will receive additional facilities for the transaction of that important branch of business, the want of which has been seriously felt heretofore. . . . With regard to the remunerative character of the undertaking, the directors entertain a sanguine opinion that it will be highly satisfactory, and no effort of theirs will be wanting, in order to make the accommodation as perfect as can be procured elsewhere, and such as is due to the important interests concerned. . . . Your directors have received material support from the London and North-Western Railway Company, and have reason to expect that same will not alone be continued, but that their example will be followed by other companies whose best interests will be largely promoted by sustaining a project the success of which may be considered as, in some respects, identical with their own.

(Signed)

"PERRY NUGENT, Bt., Chairman.

"48, Upper Sackville-street, Dublin, Sept. 11th, 1862."

ENGINEER'S REPORT TO THE DIRECTORS OF THE DUBLIN CATTLE MARKET COMPANY.

"GENTLEMEN—I beg to report that, since the passing of the act, possession has been obtained of a portion of the land required for the Cattle Market, and the filling up to the level of the Liffey Branch Railway has been actively proceeded with. A considerable space has already been brought to the proper level, covering an extent of nearly two acres. The work continues in active progress, and the market may be completed by next summer, if proper steps be taken for the purpose.

"G. W. HEHMAN."

FAILURE OF SCAFFOLDING.

THREE operatives engaged in painting the girders and rods of the roof at the L. and N. W. Railway Great Station at Birmingham were killed, and many others injured on Thursday morning last, owing to a scaffolding at a height of 50 feet from the rails giving way and precipitating them.

On same morning, and almost at same moment, two men were killed at the works of New Lambeth Bridge by the fall of the scaffolding into the river, bringing with it all the men engaged thereon, and causing the deaths by drowning of the two in question. The scene is described as dreadful to witness.

NEW GAS COMPANY FOR KINGSTOWN.—We understand that the Gas Company which was projected some time ago is about to be an accomplished fact. A prospectus will shortly be issued, and names will appear that the townspeople will have full confidence in.

Notes of New Works.

The committee who have charge of the important additions to St. Peter's Church, Phibsboro', for which Mr. Goldie is the architect, announces that they are completely out of funds, and are seeking to raise them by subscriptions and a bazaar. As the new portions will, both by their extent and ornate character, completely put the old church to the blush, we believe it to be not unlikely that the latter will, in course of time, be removed, and replaced by works of more suitable proportions and design to form a harmonious whole.

A new Catholic church has been built by William Creagh Hickie, Esq., at his own expense, on his estate at Asdee, between Ballybunion and Ballylongford, in Kerry. The estimated cost of the edifice is about £1,000, and it is erected, we (*Monster News*) believe, near or upon the site of the old church, built by the grandfather of the present landlord.

The house and premises, No. 13, Westmoreland-st., have recently been newly and expensively fitted up as a house and land agency establishment by Mr. Thomas P. Swan, late of Lower Gardiner-st. The exterior, which was formerly of plain brick, has been wiggled down, and a main cornice and blocking, architraves round the windows, and other decorations added in cement, producing, together with the plate glass front of ground floor, a pleasing architectural effect. The interior is approached through a porch with swinging doors and encaustic tiled pavement, and is tastefully arranged with fixtures and furniture, the ceiling being deeply covered and panelled with elaborate enrichments. Mr. J. C. Burne was the architect, and the plasterers work was executed in good style by Messrs. Hogan and Sons of Great Brunswick-street. Mr. Boyd, builder.

A new church for the parish of St. Jude—a large district separated from the parish of St. James—is to be erected forthwith, from plans by Messrs. Welland and Gillespie, the Ecclesiastical Commissioners' architects. The site is an admirable one, and the building will be very commodious. The foundation-stone will, it is expected, be laid in about a fortnight. Messrs. John Butler and Son are the contractors.

The North Strand Church is being painted by Mr. James Gibson, the eminent painter and decorator, of Mary-street.

Miscellaneous.

THE NEW RAILWAY STATION-HOUSE AT OMAGH.—The works of this place are progressing satisfactorily, and will be nearly completed before the winter. The filling in of the ground below the goods' shed of the Irish North Western line has been completed, and is at present being substantially bottomed. The station itself, which is a neat and compact building, is ready for roofing. The accommodation afforded in this town will, it is considered, be ample for all purposes required, and in keeping with the importance of the traffic therewith. The platform will run a considerable distance past the station-house on the upper side, so that the Belfast trains will stop on one side, and the Derry and Dublin on the other. The contractor, Mr. F. McGaghey, of Omagh, is executing the work remarkably well.—*Londonderry Standard*.

A NEW OIL FOR ILLUMINATING PURPOSES, ADAPTED TO BURN IN ALL PARAFFIN OR HYDRO-CARBON LAMPS.—We (*Standard*) notice that a new oil, called the patent Cazaline Oil has just been brought before public notice. Its great recommendations are: entire freedom from any offensive smell; perfect safety in use; and great economy in price. By its use a brilliant light is obtained at the cost of a common tallow candle. A patent has just been granted for the manufacture of this oil, and agents for its sale are now being appointed in all parts of the kingdom, by Messrs. Cassell, Smith, and Co., 80, Fenchurch-street, London.

TOWNSHIP OF RATHMINES AND RATHGAR—ELECTION OF COMMISSIONERS.—The out-going Commissioners, Messrs. Asken, Butler, Collis, Dunnill, Warren, and Wight, being the only candidates nominated, were declared duly elected as Commissioners for the next three years.

THE CLASSICS.—If you have not been able to drink at the fountain of classical knowledge, you may as you approach the temple meet some venerable and honoured scholars returning from it, and you can inhale from the flowers which they have gathered from its academic shades the precious perfume those flowers alone exhale. Though you may not have laboured as they have done in the vineyard, you can listen to what they tell of the beautiful realms of classic lore, and though you have not studied the language of antiquity in its original simplicity and majesty, you may hear them translate its beauties and interpret its meaning. The thoughts and language of great writers and great speakers are impregnated with classical knowledge, and the refinement, dignity, elegance, gracefulness, or massiveness of their styles, may be traced to the influence of early classical culture.

DIGGINGS INTO ANCIENT BRITAIN.—Consecutive explorations of an unusual character have been made during the summer of the last and present years in the Cheviot district. On these lofty hills, sealed for so many months of the year with snow, yet clad in summer with ferns and mosses and short-set grass, with here and there a purple fox-glove, a mountain pink, or a scarlet-leaved bilberry, a veritable tract of ancient Britain has been laid bare; a walled town, several fortlets, scattered hut-circles and tumuli have been disencumbered of the earth that has been accumulating over them for nearly 2,000 years; and many interesting facts have been thus disclosed respecting the Celtic tribes whom Cæsar found in possession of the land. It would appear that the Cheviot hills were well populated in those remote times. Huge circles of masonry overgrown with herbage are seen on most of them, sometimes on the slopes, sometimes on the summits, and within many of these there are smaller circles of turf-covered stones marking sites of huts. In all these ramparts and dwellings blocks of the porphyry of the district have been used as the sole building material. On the southern slope of a hill, locally distinguished as Greenlaw, great masses of ruin promised a rich reward to the spade of the excavator. Here three walled inclosures, connected with one another by a roadway, have been brought to light. Within these inclosures traces of as many as seventy stone huts can be counted. Most of the entrances into these face the east, and the floors of those that have been dug into are found to have been rudely flagged with flattish porphyry stones. The largest of the inclosures has been strengthened with two ramparts; against the inner of these walls is a hut which has a flue—the earliest evidence of the use of chimneys we possess. A sunken fireplace was found to be formed about 18 inches below the flagging, from which a flannel conducted the smoke through the thickness of the rampart. Charred wood was found in the conduit. In several of the huts charred wood was found in the floors, as well as broken pottery; in one a glass bead, in another a stone seat, in others a fragment of a glass armlet, part of the horn of the red deer, and three bottom stones of handmills. The Celtic remains on Broughlow, Chesters, and Ingram-hills have also been examined. The most recent diggings have been made on Yeavey Bell. On the summit of the Bell, 1,500 feet above the level of the sea, there is a rampart of masonry inclosing twelve acres; and within this, again, is a sunken chamber in which sacrifices are supposed to have been offered. This chamber was cleared of earth, leaving its masonry well defined; but no arrangement of a sacrificial character could be traced. On the slopes of the hill are several fortlets, or ramparts, surrounding hut-circles, which have also been opened out. In one a small guard chamber was found at the entrance recessed into the thickness of the wall of the rampart. Flint arrow-heads, broken pottery, querns, fragments of glass and oak were found in the soil in different places. The discovery also of pieces of iron slag furnishes a new view of Celtic life, as a general impression prevailed among antiquarians that the ancient Britons were unacquainted with the art of smelting.

GARDENS ON HOUSETOPS.—In a tall block of building in the Pleasance, Edinburgh, a curious and novel arrangement—that of converting the roof of the house into a bleaching-green—has been carried out. In the roof, which is of course flat, the first requirement is that it should be water-tight. To secure this, the sole is constructed of thick iron plates, rivetted together at the flanges, and having indiarubber introduced in the manner of a “washer” between the edges. To resist corrosion, the iron has been treated while in a heated state with oil, which, it is expected, will act as a preservative of the metal. Over the joints of the plates asphalt has been poured, so as to assist in preventing the access of damp to the house below. Next the iron a thin layer of clay is placed, above which soil is laid, making a thickness of twelve inches from the iron to the top of the turf. The “green” is divided by walks of asphalt, so as to preserve the turf, and, at the same time, to give access to all parts of it. Round the sides, the edges of the iron plates are turned up to the extent of fourteen inches, so that continuous rain to that depth must fall before the water can run over to the walls, supposing all drainage and evaporation to fail. At the front and back, a parapet of one foot in height, carrying an iron railing of five feet, will afford complete protection, the ends being protected by the chimney-stacks. A portion of the roof is occupied with a large water cistern, composed of iron, double-cased, with sawdust between, to prevent the action of the sun and of frost from affecting the water. The staircase by which the roof is reached is covered with a tall hutch, on the outside of which a ladder and gangway affords access to the chimneys. Notwithstanding the quantity of iron used in the roof the weight of the structure is comparatively light. The pressure is vertical instead of outward, as in a sloping roof, and the partition walls throughout carry their share of the weight. The plates have a bearing of fourteen inches on the front and back walls, and are sunk four inches in the gables, thus giving abundant support on all sides. The idea of utilising the roof in this way is entirely new, and should the present experiment stand the test of time, the plan will probably be adopted in other cases.—*Edinburgh Courant*.

BRIDGING THE CORRIB.—A project of great importance to the counties of Galway and Mayo is now in contemplation, which, if carried out, will establish direct communication between Connemara and those districts east of the lake, which will render it unnecessary for parties travelling in vehicles to make the circuit of the Corrib, as at present. It is proposed to erect a viaduct in the vicinity of Knock Ferry, which can be effected at comparatively little cost, as there is no engineering difficulty to be overcome. We are certain that the money could be raised by way of loan, and a small toll would pay the interest and create a sinking fund for the final liquidation of the debt. The advantages that would accrue to the inhabitants of Tuam, Ballinrobe, Headfort, Claremorris, Dunmore, Castleroa, and other towns, are so obvious as to require no comment from us. Apart from the facilities for travel which it would confer, the erection of the bridge would afford considerable employment, and create a circulation of money in a district where it is always greatly required. The landed proprietors of the districts which will be immediately benefited by a work of such utility, should enter warmly into the project. We do not see even why a presentment should not be obtained and operations commenced with as little delay as possible.—*Galway Paper*.

GERMAN DEAD HOUSES.—In many of the towns in Germany there is at the entrance of the cemetery a building called the dead house, where, at the request of families, bodies may be deposited for a few days before interment. By this plan the danger of burying alive is prevented. That at Frankfort is the best constructed place of the kind in the whole Germanic Confederation. It consists of a central room, which looks by as many windows into twelve smaller rooms. In each of them is an iron bedstead, on which the open coffin is laid. Over the head of the corpse is suspended a small cord, to the end of which are attached, by wires, ten brass thimbles, and those are placed on the ten fingers of the body. Should the slightest movement be made, a bell would be rung, and alarm a person stationed by relays in the central room night and day, and who is forced by a piece of mechanism to keep constantly awake. Since 1833 no instance has ever occurred of the bell being rung. Medicines, baths, and other remedies are always kept in readiness, but never have been used, and yet during that time thousands of bodies have had the thimbles placed on their fingers.

ROYAL DUBLIN SOCIETY.—Sir Charles Trevelyan, Sir Richard Griffith, and Captain Donnellan, as commissioners appointed to inquire into the condition and prospects of the Royal Dublin Society, will hold their first sitting in the board-room of the Society on the 1st of October next.

THE LIFE-BOAT.—He must be less than man, if he can read unmoved, and without a glow of admiration, such records as those of the recovery of the crew of the “Sisters” from the seething sea—when their signals of distress were seen from the coast of Norfolk, and the Calstar boatmen launched their ark of safety “through a tremendous surf, the wind blowing a heavy gale from the east, and the night intensely dark.” A hundred willing hearts and hands lent their not unneeded aid; and soon she was anchored alongside of the brig, on the South Barber Sand; “but owing to the darkness, and the fearful sea breaking over the vessel,” a full hour—an hour of anxious and painful suspense—must slowly pass, away, ere “the crew of nine could be got into the boat—and that at very great risk, as she was often lifted by the sea high above the vessel’s sides, and several times dashed violently against her and on the sand,” incurring considerable damage, and finally making sacrifice of a portion of her stores. It was life for life; and humanity triumphed in the courageous encounter. The brave boatmen who serve as ministers of the National Institute, risked their own lives for the rescue of the crew, and brought them all safely to the shore.

PENURIOUSNESS.—When it was the custom to give the box-keepers at Covent-garden or Drury-lane Theatre sixpence for taking charge of a stick or umbrella, there was once a penurious or eccentric old gentleman who used to fake his umbrella to the nearest pawnbroker’s. He used to pawn it for five shillings, and then he managed to have it kept for him five hours at a very much less rate than sixpence.

Messrs. Wardrop and Son have been declared contractors for the five sections of the Rathmines Waterworks.

A bronze statue of the late Sir Jamsetjee Jeejeebhoy, Bart., has been placed in front of the western gate of the Grant Medical College at Bombay.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to “The Publisher of the DUBLIN BUILDER, 42, MABBOT-STREET.” All other Communications should be addressed to the Editor, 26, LOWER GARDINER-STREET.

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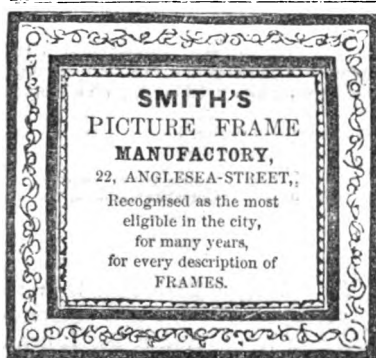
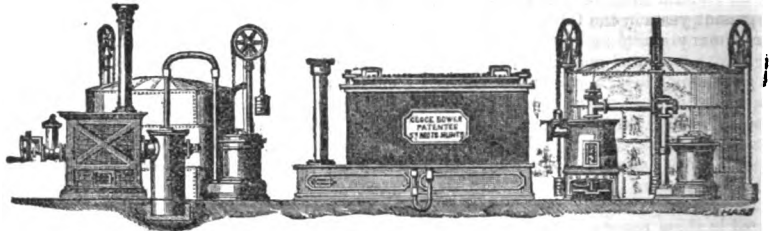
The undersigned beg to call the attention of En-
gineers and the Public to the above description of
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entrance to the St. George's Dock, Custom-house
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found superior to the ordinary Swivel Bridge, both
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Combined Gas Purifying
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References to a selected list of 100 out of a great number of Gas Works of all dimensions, erected by the
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Muslin and Net, highly ornamented with Paper
(very choice), Collars and Cuffs, 1d. and 2d.; Cover-
ings for Parasols, 2s., post free; Ditto for Bonnets,
1s., post free; Frillings for Dresses, &c., per yard;
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VOL. IV.—No. 67.

THE RESOURCES OF TURKEY.*

COMPARATIVELY little has been hitherto known by the general public, of the commercial history, the natural and industrial resources, and social status of the Ottoman Empire; and albeit so little interest has ever been manifested in its welfare and prospects—the popular belief being that its inhabitants were, from their habits, an irretrievably lethargic race—that no writer cared to inquire into the subject, until Mr. Lewis Farley, an author of eminence on Oriental topics, and a resident in Constantinople, holding a responsible official position thereat, undertook the duty.

How he has fulfilled it may best be inferred from a preliminary acknowledgment that, while his book displays much topographical learning and research, acquired under the difficulty of governmental sources of information not being available there as in these countries, and, consequently, only obtainable through the dint of personal exertion and inquiry, it is also divested to a considerable extent of that dryness of which historical records, whose basis are statistics, invariably partake.

Although Mr. Farley chiefly addresses himself to that fortunate section of the community whose constant and only care is to invest the contents of their well-filled coffers to the best advantage, nevertheless, the comprehensiveness of his book is such as to constitute it not only an acquisition to every library, but—forming, as it does, a link in the chain of universal history—an indispensable addendum to the collection of the savant, and the political economist especially.

In a preliminary “general survey” of the Ottoman Empire, Mr. Farley remarks that “he has met with persons—even amongst those whose position demand and should imply a perfect acquaintance with the matter—who possessed so little knowledge of the country as to imagine that ‘all the inhabitants of Turkey are Turks, and that in Syria an Arab must necessarily be a Mussulman,’ adding that “Turkey, though an empire, is not a nation—rather an aggregate of nationalities or governments accidentally united by having been the subjects of a common conquest; but including within its boundaries some of the fairest and most fertile portions of the world, and comprising some of the earliest and most celebrated seats of learning.”

If Mr. Farley needed a favourable introduction for his book—through whose medium he eloquently and lucidly speaks his purpose—he might confidently rely on these facts alone to prove its necessity, and invaluable assistance in supplying information to the unenlightened in England, as well as in contributing an authoritative record to oriental national archives.

Turkey (as is well known to every one acquainted with geography) extends itself into three continents, viz., Europe, Asia, and Africa, comprehending an area of 1,836,478 square miles, and an aggregate population of 35,350,000, made up in the following manner of a heterogeneous medley of races:—

Turkey in Europe	15,500,000
Asia	16,050,000
Africa	3,800,000
	35,350,000

representing a section of the human family, whose numerical insignificance at least, it must be admitted, does not disentitle it to a consideration of its worldly welfare by the more polished and educated inhabitants of the eastern hemisphere.

In the first few chapters Mr. Farley treats of tenure of land, finances, agricultural and mineral resources, and general banking operations. It seems by the author's revelations on the first-named subject that we in Ireland are not singular in our unsatisfactory relations between landlord and tenant, for that the poor

tenant in Turkey under the “*ortakgulik* form of contract”—which is somewhat mutual as to improvements and maintenance—is almost invariably victimized by the proprietor, “who contrives, through injustice and oppression, and sometimes through the improvidence of the labourer himself, to involve him in debt; and such is the usurious rate of interest, that this is continually increasing, so that the labourers, as a class, are in a general state of comparative serfdom to the proprietor.” In illustration of the oppressive system pursued, Mr. Farley cites examples unnecessary to reproduce here.

Speaking of its agricultural resources, he says—

“Few countries in the world possess to the same extent those natural advantages enjoyed by Turkey. Throughout the greater part of the empire the soil and climate permit of the almost inexhaustible production (in excess of the wants of the inhabitants) of those ordinary raw materials which form everywhere the great staples of food and manufacture. Grain, wool, cotton, hemp, hides, tallow, timber, are everywhere produced in abundance; while, in addition to these ordinary products, Turkey yields in profusion those rarer articles of merchandise, such as drugs, dyes, gums, fruit, vegetable oils, silk, sugar and tobacco, which can only be abundantly and profitably produced, under conditions of special advantages of climate and geographical position.”

The mineral resources of Turkey are evidently one of those chief points, with reference to the investment of capital, forming the immediate purpose of this book; and Mr. Farley declares their value to be without the limits of calculation, as “the soil teems with mineral wealth, ready to enrich those who have the energy to seek for it;” in a succeeding portion remarking that, “the application of that moving power, industry and labour, supported by capital, to the undeveloped mineral resources of Turkey, would prove of incalculable advantage to the government of the Sultan, and open up a wide and remunerative field for commercial enterprise.”

“The growth of cotton,” to which more than ordinary consideration is demanded at present, and with which associations of unhappy memory are extensively blended, both abroad and at home (and we fear are likely to continue so indefinitely), forms an important chapter in Mr. Farley's book, which directs the attention of those interested in the matter (and who is not, more or less?) to the facilities which exist for its growth and improvement in the Ottoman Empire. At such a juncture the value of reliable information as to the means of even lessening a calamity is immensely enhanced; and if for this reason alone, Mr. Farley's book must meet with extensive and eager purchasers.

The author's own “official position,” as before referred to, as Accountant-General of the Bank of Turkey, must necessarily have afforded him facilities for obtaining a perfect knowledge of the general banking system throughout the empire, where he says *banking is little better understood than it was 2,000 years ago*, as also for forming a correct idea of the successful results sure to attend new and well-conducted enterprises of that character. Capitalists must, therefore, place implicit reliance on the information afforded by Mr. Farley, who concludes his chapter on the subject by saying that “twelve, fourteen, and sixteen per cent. nett profit are not to be made every day in Europe; whilst in Turkey, with proper care and management, no banking or trading establishment should return less, and that, too, without more risk than legitimate speculation will authorise.”

As this terminates the first portion of the able book in question, we postpone—for want of space—to a future number, consideration of the subsequent contents.

A NEW PROPELLING POWER.—On the Scheldt, near Antwerp, experiments have been made with a river-boat provided with a new propelling power, which has been recently discovered. The boat has neither paddle-wheels nor screw. In the middle of it, however, is a cone-shaped kettle into which the water is pumped up, and from which it is driven out with great force into the river through two curved boxes on the side of the boat, by which means the vessel is propelled forward with great swiftness. By simple machinery the arrangements of the boxes can be so altered that the boat can be turned immediately and steered in any direction. The experiments made with this boat, which is intended to ply between Luik and Seraing, have far exceeded expectation, and will perhaps cause a revolution in the means of propulsion. The new system, which has been discovered by a German, one Mr. Seiber, can be very well applied to large vessels.

* The Resources of Turkey (considered with especial reference to the Profitable Investment of Capital in the Ottoman Empire). By J. Lewis Farley, author of “Two Years in Syria,” &c. London: Longman, Green, Longman, and Roberts.

THE DUBLIN WATERWORKS AND THE FIRE BRIGADE.

THE following is the recently-issued report of the Committee on these joint subjects, being a singularly lucid and able document prepared by Dr. Gray, to whose indefatigable exertions and immense talent and tact the successful issue is almost wholly attributed, and which we give *in extenso*, although to the exclusion of other pressing matter, its perfect freedom from superfluity or verbosity rendering curtailment impossible:—

"Your committee have to report that, in the discharge of the duties imposed on them by the act of Parliament, and by your appointment under that act, they proceeded to get detailed working drawings and specifications prepared for all your works. Anxious that the council and the public should know, before commencing the works, the actual limit of expenditure that would be required to bring the Vartry waters into Dublin, your committee resolved not to enter into contracts either for pipes or for the making of any portion of the works till they would be in a position to solicit tenders for *all*, and thus be able to inform you, with the confidence given by actual contracts, the result of the most open competition, what the absolute extent of the cost of constructing your works would be. Your committee determined to revise the whole project in all its parts to the very minutest detail, in order to be able to point out to you every possible alteration, improvement, and addition to your works which might involve increased costliness before entering into any contract or commencing any work. They felt it was due to you, due to the citizens, and due to their own reputations, to avoid the errors committed in other cities, and to take a course that would prevent the necessity of increasing your works and your expenditure when your works would be half completed. The result of this revision they will now place before you in detail. Resolved to secure the greatest amount of perfection and permanence in your works, which care, experience, and skill could suggest, your committee requested your engineers to review the whole and every part of the plans. Their instructions were, not to be content with the ordinary modifications and improvements consequent on making detailed working drawings of the outline plans deposited in Parliament, and which are provided for by the 10 per cent. allowed on all parliamentary estimates for contingencies, but to ascertain whether any and what alterations might be made to render your water supply more abundant and unfailing, and your works more secure and efficient for their intended purposes. After a most careful application to the subject, your engineers advised that, though your works were admirably planned and most skilfully contrived, there were some alterations which would enhance their efficiency and secure protection against all future chances of failure or disappointment resulting from accidents which no human foresight could guard against, and which alterations it would, in their opinion, be most imprudent to omit. The importance of such security was so obvious, that your committee caused the alterations to be embodied in your detailed drawings and specifications. The principal of these changes may be stated in untechnical phraseology in such a manner as to render the intention and value of the improvements intelligible to all who will take the trouble of examining the subject.

"The additional works may be conveniently taken in the order of the line of works, commencing at the great storage reservoir at Roundwood.

"No. 1.—In the great embankment at the Roundwood reservoir, forming the basis of your whole project, several additions to quantities, and some modifications in the form of the by-wash, were suggested to give greater strength to the embankment, and a more free outlet to casual mountain floods, and thus more effectually to guard against accidents. Other alterations in the arrangement for drawing off the water for use, and in the construction of the tunnel, the valves, and valve house, were made with the same intention. It was estimated by your engineers that these new works thus added to your parliamentary plans would cost about £7,000. The object being to give greater stability and more certain security against accident, your committee gave to these proposed additional works their entire and cordial sanction.

"No. 2.—The main pipe from the end of the tunnel near Newtownmountkennedy was laid down on the parliamentary plans as of 32 inches internal diameter. A pipe of this size, with the amount of fall given by the natural gradients of the pipe-track, was calculated to be capable of conveying over 13,000,000 gallons daily to the Stillorgan reservoir. The tests of the actual rainfall in the Vartry district established by Mr. Neville, your city engineer, have satisfied him that your reservoir will be capable of yielding a much greater quantity, and it was therefore thought advisable to increase the diameter of the main pipe by one inch, which in practice, instead of an increase of 1-32nd, will give 1-7th more water, 15,000,000, instead of 13,000,000, gallons daily. Your committee, therefore, resolved upon at once sanctioning this additional work, by which you will get as much as two millions of gallons of water daily for an

additional expenditure of about £8,000, an increased supply which you could not procure hereafter for less than £40,000 or £50,000.

"No. 3.—Your storage reservoir at Stillorgan was designed to contain three and a-half days' supply, and your parliamentary plans and estimates were based on the amount of works that would be required to provide that storage. Your committee are of opinion, and in this they are fortified by the joint opinions of your city engineer and your consulting engineer, that it would not be prudent to provide for less than ten days' supply in your storage reservoir, which is supplied from your great impounding reservoir by a single pipe; inasmuch as if by any accident that pipe chanced to be injured, or if any other unforeseen event necessitated the execution of repairs along the main line, the city would be in danger of having a short supply. Your engineers have therefore provided for an increased storage in your Stillorgan service reservoir, amounting to about ten days' supply, which it is considered will be amply sufficient to protect the city against such a contingency as has been referred to. The cost of this additional work will be about £5,000.

"No. 4.—The parliamentary plans provided for a single large pipe for conveying the supply from the service reservoir at Stillorgan for distribution in the city. It is obvious that were any accident to happen to any portion of that single pipe, or to any of its valves, the city could have no water supply during the time occupied in making the necessary repairs. Your committee, therefore, decided that instead of one large pipe there should be provided two pipes of smaller, but still of large, dimensions, to convey the water to the city. This alteration of plan will effectually guard against the possibility of the calamity adverted to. The cost of the additional works, including the pipe, will amount to £6,000.

"The total of these four additional works were estimated by your city and consulting engineers in round numbers at about £26,000 or £27,285, including some improved valves and contingencies. The materials of these estimates are so few and so simple that there is hardly any room for error. You may, therefore, confidently assume this sum to be the true value and probable cost of the several new works which have been superadded to your works, as contemplated by the parliamentary plans and estimates. You will remember that the parliamentary estimate for your works, as based on the outline plans deposited in Parliament, was £216,835 1s. 7d., plus £21,633 10s. 2d., being the ten per cent. for contingencies, which is the usual sum allowed as the probable additional cost consequent on converting parliamentary plans into detailed working drawings, accompanied with minute specifications as to the materials, quantities, and form of construction. If to the parliamentary estimate you add the cost of the additional works deemed essential to greater stability, efficiency, and security, you will obtain these results:—Parliamentary estimate, £237,968 11s. 9d.; new works, as above detailed, £27,285 19s. Total estimate, £265,254 10s. 9d. Your committee deemed it advisable to make a conditional arrangement to enable you at any time hereafter to construct filter beds upon the most approved principles. They, therefore, took the requisite quantity of land immediately adjoining the site of your great reservoir at Roundwood, and in contract No. 4 they asked for a separate tender for the filter beds, in accordance with plans and specifications, but with the special condition that it was to be determined at the discretion of the Council whether they were to be constructed or not. Your committee advise that it will not be necessary to construct them at present, and they strongly incline to the conviction that no eventuality is likely to arise for many years to render their construction requisite. The cost of them would probably amount to from about £20,000 to £21,000. This sum is, therefore, to be deducted from the tender accepted by your committee. It will, of course, also be in the discretion of the Council to determine whether or not the additional works, specially enumerated as No. 1, No. 2, No. 3, and No. 4, and so strongly recommended by your engineers as essential to the greater efficiency of your supply, shall be constructed. Your committee strongly urge on you the construction of these additional works, confident that they will meet the approval of the citizens at large, and that the increased efficiency and, above all, the permanence and security of your works and of your supply, require their construction. The execution of these additional works will, in the opinion of your committee and of your engineers, render your water supply the most perfect and the most secure of any of a similar character in the United Kingdom. When your specifications and working drawings were prepared, your committee, anxious that there should be the most open competition for your works, ordered that advertisements soliciting tenders be inserted once every week for six weeks in each of the following journals, viz:—*The Times*, *The London Builder*, *The Engineer* (London), *The North British Mail* (Scotland), *Saunders' News-Letter*, *The Freeman*, *The Daily Express*, *The Morning News*, *The Irish Times*, *The Evening Post*, *The General Advertiser*, *THE DUBLIN BUILDER*. This extensive advertising involved some additional expense, but it secured the great advantage of full competition. The result amply justified the expectation of your committee, for no less than thirty-one contractors tendered

for one or more of the five contracts into which the works were separated. A list of the several competing contractors, and of the sums at which they tendered for the several works, are subjoined as an appendix. Some eminent houses tendered for two or more, some for three, some for one only of the five, while only one—Mr. M'Cormick, M.P.—tendered for the entire five. In order that they might be in possession of a reliable standard whereby to test the several tenders and ascertain whether they represented the true value of the works to be constructed, and thus guard your committee against accepting too high a tender on the one hand, and against the more dangerous error of accepting a tender at which the works could not be executed, and the acceptance of which would inevitably lead to vexatious delays and litigation, and eventually to great pecuniary loss, as in the case of Liverpool and other towns, your committee requested your engineers to attend and place before them independent estimates, one prepared by each, of the true value and probable cost of the works. The engineers submitted their estimates, which were prepared without concert, with the intention of comparing them after placing them before the committee. The estimate of Sir John Macneil was £278,154 8s. 8d., including the filter beds. The estimate of Mr. Neville was £276,048 2s. 6d., also including the filter beds. The closeness of these independent estimates shows in the most conclusive manner that the true value of the works was substantially ascertained by each. The committee having these data before them, proceeded to open the tenders, and after a careful examination of them, and obtaining the personal advice of your engineers, in addition to the advice contained in the reliable test of the value of the works given in their independent estimates, they resolved to accept the tender of Mr. M'Cormick, who offered to execute all the works—to include all 'necessary extras,' which often form a very important item in settling a contractor's account—and to maintain your works in perfect repair for two years after their completion, for £274,000, which is £2,000 under the estimate of your city engineer, and £4,600 under that of your consulting engineer. If you deduct from the tender of Mr. M'Cormick—which your committee accepted—the cost of constructing the filter beds, say £20,000 or £21,000, which the form of the tender allows you to deduct, you arrive at £254,000 or £255,000 as the tender for the construction of all your works, including that most dangerous of all items, 'necessary extras,' and that most important element of security to your Council and the public, a guarantee of maintenance, in perfect order, for two years. This tender absolutely limits the constructive costs of your works, as all extras which will be necessary to complete your present plans specifications are included in it. Your committee look upon this tender as a most favourable one. By its acceptance you will be saved all future trouble as to construction, and all uncertainty as to cost. One contractor of great experience and ample capital will be responsible for all your works. There can be no clashing between contractors, as would be the case if your committee were compelled, by the absence of a tender for the whole, to divide your works into sections, as seemed to be almost inevitable from the extent of the undertaking. The total sum, which by including extras, fixes the limit of cost, being £254,000 or £255,000, exceeds the parliamentary estimate by the comparatively small sum of £17,081 9s. 8d.; but it includes the cost of the second line of pipes from Stillorgan to Dublin—of the trebling of your water storage in your service reservoir—of the providing the means of bringing an increased supply of 2,000,000 gallons a-day into the city—of greater permanence and security in your main embankment—of improved valves and of other additional works not contemplated in your parliamentary plans, and which your own engineers value and estimate at £27,285, estimating the cost of the material and labour, but which are of inestimable value as the means of perfecting your system, and securing the citizens against all accident and risk. There were some tenders sent in for some of the works which would represent a smaller cost if you were to take the lowest tenders offered for each of the five contracts. But your committee, fearing that it would be impossible to construct the works tendered for at the prices named, felt that either some gross error was made by the parties sending in these tenders, or that they were incompetent to value the works to be executed; and they therefore declined to accept them. In adopting this course they had the entire sanction of your engineers, who distinctly stated that they would not be responsible for the safety of the works if let at prices at which it would be impossible to execute them. They were mindful, too, of the calamities that befel the Corporation of Liverpool, and of the Chancery suits, delays, and vexations that followed—not the least of which was the large addition to the cost of constructing the works. There were, however, so many advantages offered by the comprehensive tender and the favourable conditions of Mr. M'Cormick's offer, apart from its being so much under the estimates of your engineers, and yet being so near an approximation to them as to show that the tender was based on a just and fair valuation of the works, that they did not hesitate to accept it. The advantages offered by the special terms imported into this tender, which we append, give great confidence to your committee, and will

give equal assurance to the public that the work will be well done, and that even those who were up to the present alarmed at the possible contingent cost of so large an undertaking, and at the examples of Liverpool, Glasgow, Manchester, &c., will be agreeably surprised to find that the total constructive cost of your magnificent project will exceed your parliamentary estimate by so small a sum, while it is in reality ten thousand pounds under the detailed estimate of your own engineers. Your committee, in asking your approval of this tender and of their acceptance of it, cannot but congratulate you, and, through you, the city at large, at having the constructive cost of your works thus absolutely defined, ascertained, and fixed at a sum within that which the most sanguine could have hoped to obtain the perfection provided for by your present working drawings, and so enormously under the cost which all classes of the citizens would have willingly accepted as a guaranteed maximum at any period since the project was first decided on. In accordance with the instructions conveyed by your adoption of their last report, your committee concluded the arrangement with Mr. Wilson for the lands at Stillorgan, and having been advised by eminent counsel that it was quite competent for them to take possession of the land, they have, in accordance with that opinion, taken possession of the land; and, acting on the same advice, have given instructions to your law agent, Mr. Smyth, to prepare the notice and bill recommended in the report, which already received your sanction. The draft agreement with the railway company is now before counsel, and your committee hope to have this portion of their duty completed in a few days. In pursuance of the instructions given when you entrusted them with the management of the Fire Brigade Act, your committee advertised for a superintendent, but having announced that they would expect experience and knowledge as the leading qualifications of candidates, the number of intending candidates was considerably reduced. Out of twenty-two who sent in applications thirteen presented themselves, and your committee, feeling that it would be impossible to investigate, *vis à voce*, the capacity of each at the same time and in the same manner without giving one an advantage over the other, determined to adopt the competitive system, and prepared a series of thirty-six questions, which we append, a copy of which was handed to each candidate. The candidates were accommodated with pen, ink and paper, in the council chamber, and having collected the answers as the end of two hours and a half, the chairman and secretary sealed the package, and all were opened and examined by the committee at their next meeting. The result of this written examination was that the same question, in the same words, and under exactly the same circumstances, was put to each candidate, and your committee retain a perfect record of the answers written by each candidate. These written answers are not liable to misconception, and no candidate had the advantage over another of any particular form of putting the question, which would be inevitably the result of a *vis à voce* putting of the same question. Your committee put such questions only as served to constitute a test of the practical knowledge and experience of the candidates, and they believe that no man who could answer them with truthfulness and in a satisfactory manner could make a bad superintendent, unless physical defect incapacitated him, while, on the other hand, no pretender could answer all of them in such a way as to deceive the committee. The result was that some of the candidates, having no acquaintance whatever with the subject or knowledge of the special duties of the office, were struck off the list. Of the other six, one (Mr. J. Ingram) answered with a seemingly perfect knowledge of the business, and your committee found, on looking to his application, that this gentleman had been for many years attached to one of the New York fire companies, and had performed in that city every department of a fireman's duty. He is also conversant with the English system. His answering was such as to place him far in advance of all the other candidates. Captain Hort's answers were next in merit, but there is a frank admission that he lacks the extensive practical experience which Mr. Ingram possesses. Mr. Rooney was third in order as to answering, and Mr. Slowe fourth. Captain Acheson and Mr. Hodgson were placed as equal in the fifth rank. The committee found in the former a deficiency of experience, and the answering of the latter was not equal to what was expected from a man who had even his experience under Mr. Boyle. On a subsequent day your committee examined, *vis à voce*, the six candidates, and found, on a personal discussion of the details of a fireman's duty, that Mr. Ingram indicated a completeness of knowledge and experience which distinguished him from the other candidates. Your committee feel it due to themselves to state these facts thus definitely, as many of your members may be relying upon the tests of qualification applied by your committee, and may assume that being retained on the list indicates perfect fitness for the office. The committee desire it to be distinctly understood that they applied negative rather than positive tests. In applying these negative tests they removed the names of Messrs. Rooney and Slowe from the list, principally because of their age. If asked their opinion, they would not hesitate to say that Mr. Ingram seems to possess more knowledge of fire duties than any of the candidates; and that if, on further investigation, he is found

to show ability to direct and command men, he would make a good officer. The other gentlemen retained on the list may make, after good training, and such experience as it is to be hoped they will not acquire in Dublin, efficient superintendents, being accustomed to control men. But your committee do not feel such confidence in their experience as would warrant the placing them in the same position as to present capacity as the gentleman placed first on their list. Having thus frankly given their opinion, they will add, that, if the election were in their hands, they would advise the appointment of a man already fully acquainted with fire duties in all its branches, and they now anxiously advise that if you do not think any of the four is fully competent to the perfect discharge of this most important office, you ought not, without further inquiry, to proceed to an election. Your committee have to report that since their last financial statement they have expended the sum of £24,046 6s., of which they give details in an appendix. A considerable item of this expense has been the cost of preparing the plans, but your committee feel that it would be highly imprudent for them to offer your works for tender until they have such complete and detailed plans and drawings, and such accurate specifications, as would prevent the probability of any imperfection in your works, and protect you from the risk of having to construct additional works hereafter. All which we certify as our report this — day of September, 1862.

(Signed) "JOHN GRAY, Chairman."

"WAY LEAVE"—THE WATERWORKS ARBITRATION.

MR. FISHBOURNE, the arbitrator, sat on the 25th ult. at the City Hall, and resumed his inquiries as to the compensation for "way leave." Mr. Barry, Q.C. (for the corporation, with Mr. Smith, law agent), Mr. Neville, city engineer, and Mr. Levinge, barrister, attended; Mr. Falkner, solicitor, appeared for the trustees of the Cunningham estate; Mr. Toomey, solicitor for various claimants; Mr. McCay, solicitor; Mr. H. M. Townsend and Mr. Brett, engineers. Dr. Gray, chairman of the waterworks committee, was also present.

A number of cases of "way leave" were examined into and completed. Mr. Brett and Mr. Townsend proved to a value for way leave at one penny per yard, at twenty years' purchase, and that the tenant-at-will should be allowed three years' purchase.

Mr. Barry, Q.C., contended that one penny was too much, and examined three eminent water works engineers from England on behalf of the corporation, when they proved that a halfpenny a yard was a fair and liberal allowance, taken at thirty years' purchase; of this they said the tenant-at-will was entitled for his disturbances, &c., to five years' purchase.

Mr. Thomas Duncan, engineer of the Liverpool water works, in reply to Mr. Barry, Q.C., said he had considerable experience in water works, and in the valuation of land in England for "way leave" and pipe track. He had been over the sites for the reservoirs, the works generally, and the course of the pipe track for the Dublin water works. He pronounced the entire to be a most excellent scheme of water works, and one that must prove most beneficial for the citizens of Dublin. If the works were executed at the sums contracted for they would be remarkably cheap.

In answer to Mr. Levinge, he said the meaning of "way leave" was, that the corporation were authorised to make their tunnel, or culvert, or lay their pipes, and they had full power to go upon the land at any time for the purposes of repair, but the surface above this track was for the use of the landlord. In the present case a halfpenny a yard, at thirty years' purchase, was a handsome compensation. He had known land of much better value near Liverpool obtained at three farthings a yard.

Mr. Barry said the land in question was let at £1 an acre, and Mr. Duncan's estimate of a halfpenny a yard was equal to £2 8s. an acre.

Mr. Duncan stated that he received instructions from the corporation to act in a fair, just, and liberal spirit. He also stated from all his experience in England practically, that once the pipe was laid it was never after disturbed, nor did it in any way affect the enjoyment or the value of the land through which it ran. He never knew the existence of a pipe track to depreciate the value of land in England.

Mr. Joseph Jackson, engineer, said he had been engaged on the Bolton water works, and had considerable experience on this question of way leave, and concurred in the evidence of Mr. Duncan. His practical experience was that he never knew the existence of the water pipes to interfere with the use or the value of the land. Once laid they were never seen again.

Mr. Robert Rawlinson said he was one of the engineers of the Board of Health, and had been connected with it from its commencement; had carried out extensive water works in various parts of England; had considerable experience in the valuation of land for way leave and other purposes connected with water works. The water for the supply of Lancaster, the works of

which he had carried out, and for the supply of Swansea, on which he was now engaged, was carried along a country much similar to that in the Dublin case. He concurred in the evidence of Mr. Duncan and Mr. Jackson.

Mr. Levinge and the engineers for the claimants, after hearing the evidence of those three gentlemen, assented to their rate of valuation in the case in question. In a number of cases the amounts of compensation were settled by agreement.

Mr. William Bentley made a formal demand upon the arbitrator to proceed with the inquiry as to his land at Stillorgan, stating that the notices had been served by the corporation, and possession of the land had been taken, and nothing now remained but for the arbitrator to make his award of compensation.

Mr. Barry, Q.C., informed the arbitrator that the land referred to by Mr. Bentley was not required by the corporation, and therefore he could not proceed to make an award in reference to it. The corporation had obtained other land, and had a bill ready to be passed next session, enabling them to make the deviation.

The arbitrator would lay the facts before counsel, and obtain his opinion as to what course he ought to take. He suggested that Mr. Bentley should send him a statement of the points upon which he relied, and the corporation should do the same, and he would send both statements to counsel. He would state on the 27th of October, whether or not he would go on with Mr. William Bentley's case. Mr. John Bentley's claim for compensation for a house was gone into, and evidence taken.

The sitting was resumed on Friday, and numerous claims adjusted, without any question of particular interest being raised.

STAINED GLASS.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR—We have lately erected a stained glass window in our Church to the memory of the late Lord Rossmore. Mr. John Holmes, of Monaghan, commenced the subscription two years ago, and laboured diligently with the other members of the committee till their efforts have been crowned with complete success. They determined, if possible, to have the work executed in Ireland, and from amongst the competitors selected an Irish firm, who have given them every satisfaction. I enclose now an extract from the *Northern Standard*, our local paper, descriptive of the work. It must be gratifying to know that in this country we can produce works of high art, equal to those of our neighbours.—I am, sir, your obedient servant,

CORRESPONDENT.

"MEMORIAL WINDOW TO THE LATE LORD ROSSMORE.—It affords us much pleasure to be able to announce that the erection of this 'memorial' is now completed, and the attendants at our church on next Sabbath will have in their view, instead of the unsightly walls formerly seen through the east window, an admirable display of stained glass work which cannot fail to be highly appreciated by those who see it. To the subscribers to this testimonial who may not have an opportunity of seeing it, we will endeavour to give a description of it, which we are conscious will fall very far short of its real merit as a work of art. The stone work of the window is known as the perpendicular Gothic, arranged so as to admit of a bold working of the glass in the tracery designs. In the tracery of the upper centre light are placed the emblazoned arms of the Western family with its various quarterings. In the large side compartments of the tracery are placed scrolls, interlaced with floral ornaments, on which is inscribed the text, 'For as in Adam all die, even so in Christ shall all be made alive.' The window is divided into three compartments, the centre being somewhat wider than the side lights; these compartments are filled with an ornamental scroll work of chaste design and rich colouring, the back ground being filled with deep blue and ruby glass. In the centre of the middle compartment is a medallion containing the Lord's Prayer, set in brilliant gold, with a back ground of ruby. In the corresponding sections of the side lights are mediæval scrolls bearing the text, 'I am the resurrection and the life, saith the Lord: he that believeth in me, though he were dead, yet shall he live; and whosoever liveth and believeth in me shall never die.' The base of the window bears the following inscription:—'In memory of the Right Hon. Henry Robert Western, third Baron Rossmore, of Rossmore Park, in this parish, whose mortal remains rest in the family vault adjoining; born August, 1792; died December, 1860. This window is erected by his numerous friends and attached tenants, A.D. 1862.' The work reflects great credit on the firm of Messrs. Barff of Dublin, who furnished the design, and to whom the erection was entrusted. The committee deserve the best thanks of the subscribers for the great care and attention bestowed on carrying out their intentions, and the compliment paid to the memory of the deceased nobleman is conveyed in a most graceful and effective form.

RESTORATION OF ST. PATRICK'S CATHEDRAL.

NEARLY nine months have elapsed since we specially noticed the characteristics of the vast works undertaken by Mr. Guinness in the restoration of our venerable Cathedral, which, but a comparatively short time ago, was a mass of crumbling ruins; and, during that interval, immense progress has been made towards completing the Herculean task so nobly volunteered. Indeed, we left it at the period referred to, declaring our intention "to return to our survey when the restoration should have terminated;" but, as each stage of the proceedings opened up a necessity for various new works not altogether anticipated, but essential to the completeness of the whole, we may again detail their progress without waiting for "the termination," which is still far distant. It may be remembered that, in referring to the construction of the groined ceiling over the nave, we noticed impediments to its uniformity as presenting themselves, owing to the irregularity of the opens in the north and south walls, as also to the soffit of the great western window rising several feet above that of the ceiling; these, however, have been so skilfully surmounted as to leave no material defect visible, the tall single shafts reaching from ground line, and from which the groins spring over the uniform piers, being dropped on the spandrels over the irregular, and terminated by corbel heads, still, however, preserving uniform the peculiar trefoil outlines of the groining. By splaying the soffit of the latter, where it meets the western window, an abrupt or unsightly collision is avoided, and the method so adopted is scarcely noticed in looking upwards some 80 feet. This ceiling is a highly important constructive work; the ribs are boldly moulded, the spandrels and soffets carefully lined in imitation of stone work, and the bosses effectively foliaged. In the south aisle, the ceiling, which is of corresponding character, has also been restored with brick vaulting and stone ribs; and in the north, preparations are being proceeded with for a precisely similar work.

The triforium and clerestory windows of the nave at both sides are complete; the former consisting of doublet arches within a single one with bold mouldings and unpolished black marble (Kilkenny) shafts, trefoil pannels relieving the spandrels; and the former of single lancet headed windows, the groining forming a trefoil canopy over same.

The south wall of nave, which it must be remembered was *totally* rebuilt, now stands forth in its integrity, being complete even to the cleaning down of the stonework, and displaying, together with fidelity to its prototype, a surpassing excellence of workmanship by the builders, Messrs. Murphy and Son.

The north wall is not yet quite so complete as regards the lower portions; the piers of the irregular arches, above referred to, being plain octagonal and massive—whereas those of all the other portions are shafted and of more architectural design—the builders are obliged to cut deep into the masonry and attach to the new stone facing, shafts as far as possible to correspond with the remainder. This portion of the work is attended with uncommon difficulty, and we shall watch the result with interest. As yet the great west window has been uninterfered with excepting in the restoration of the original internal double shafts in Kilkenny marble and arch mouldings in stone.

The floor of the church has been lowered to its original level, which was 18 inches beneath that of the flagging when these restoration works were commenced.

A soft-toned light is imparted to this portion of the edifice, through the clerestory windows, which are filled in with cathedral glass, with a small portion stained, of *fac simile* pattern to the ancient windows, of which some remnants still exist. These were produced at the establishment of Messrs. Casey Brothers, Marlborough-street.

The south aisle windows are also to be filled in with glass to harmonise, and a sample design has been fixed in one of the opens for approval of Mr. Guinness by Mr. Barff (who it is understood will have charge of this portion of the work).

Dean Swift's monument, the temporary removal of which was necessitated by the removal of the south wall of nave, has been replaced in its original position without the slightest injury, a precaution which Messrs. Murphy have also carefully observed with reference to the other monuments in the church.

The new south porch has been completed, all but the flooring, and the ceiling groined in brick to correspond with that of aisles.

We now turn to a portion of the Cathedral of which we had occasion to make but little mention in our previous notices, viz., the choir and transepts, and find most extensive works proceeding in connection therewith. All the fittings, stalls, pews, Knights Templars' banners, &c., of the former have been removed, together with the organ and screen which separated it from the remainder of the nave, opening up an uninterrupted view from east to west, and with it exhibiting a marked contrast in the character and rise of the ceiling and other features; another important difficulty to be surmounted.

This portion of the church has undergone previous restorations (?) on two distinct occasions, and it will now be an unquestionably critical task to make it suit the remainder and reconcile incongruities. The floor of this as well as of the transepts will have to be lowered to the level of nave, and be newly flagged.

St. Paul's Chapel, which occupies the southern transept, is, even now, in an advanced state of restoration; a large portion of the groined ceiling similar to nave is completed, as also the triple window (for which, as already announced in the DUBLIN BUILDER, stained glass subjects of high artistic merit are being prepared by Mr. Barff). The triforium shows on east and west walls a central semicircular-headed arch with *chevron* moulding and couplet lancets within a single arch at either side; and the clerestory has trefoil-headed lancets. The interior of the south transept window is finished with clustered black marble shafts on jambs and at back of mullions. In the north transept, known hitherto as the Parish Church of St. Nicholas Without, identical works are being proceeded with, the large window is in progress of demolition, and will be replaced by one of three lights similar to the south; the timber floor which was elevated above the aisle arches, and served as the body of the church named, has been completely removed.

A difficulty of no ordinary character here presented itself. The east and west walls of this transept were, from some unexplained cause, built of lesser thickness than those of the corresponding walls in the south transept, consequently it became impracticable to preserve harmony of the features without almost entirely rebuilding the former. This, however, is but carrying out the original plan, which evidently provided for similar arrangements in both transepts, the departure from same in the former case, being a consequence of the many alterations by many hands to which the venerable edifice has been from time to time subjected.

The aisles of each transept will have groined ceilings similar to those of nave; and the great intersecting piers are about to be completely refaced and otherwise restored.

Entirely new furniture and fittings are also being prepared; and the organ, too (of Spanish Armada memory), will undergo overhauling previous to refixing, and a modification likewise, ensuring, we believe, an uninterrupted view of the nave from east to west. That even further works in connection with the interior will yet be necessitated before the princely donor will hand his gift over to the Cathedral authorities and the nation at large, is evident; but these we shall not anticipate. The carvings of the various caps, corbels, bosses, &c., throughout are executed with a delicacy and freedom which does high credit to the sculptors engaged, the majority of whom, for the sake of our national art, we are proud to see, are "Irish," though we by no means desire to disparage the work of the few English artisans employed. Passing to the exterior at the south side we find it perfectly restored: the aisle walls, with their weathered buttresses, simple splayed lancets and triple embrasures; the clerestory windows, with shafted jambs and chevron heads; the single embrasure parapet over nave wall; the south porch, and the great south transept, with its triple windows and double tier of niches on either side (referred to in a previous article), are all now complete—the dark tint of the massive calp stone walling contrasting finely with the more cheerful Tullamore limestone dressings of windows, buttresses, &c., throughout. On the quality of the workmanship here, too much praise cannot be bestowed; it has been very rarely equalled, and never in our experience, surpassed.

At the north side of the Cathedral various restorations are also proceeding; but we shall defer particulars till our next and final notice. A new road of curved form will shortly be completed, forming an approach from Kevin-street to the south side of the Cathedral, and thereby exposing the main portions of the restorations in that direction.

Before quitting the subject we must accord an acknowledgment of the sublimity and grandeur of the undertaking, and pay an humble passing tribute to the munificence of the man who has already expended a princely fortune in the presentation of a national gift, and must still expend much more before his philanthropic spirit can be gratified in witnessing its consummation.

[Illustrations of the recently restored portions will be given in early numbers of the DUBLIN BUILDER.]

THE PROGRESS, RESOURCES, AND PHYSICAL CHARACTERISTICS OF THE COLONY OF VICTORIA.

"HITHERTO little has been known as to the actual progress which this colony was making in manufactures and arts. Now and then a casual paragraph in a newspaper mentioned the establishment of a mill or factory; the discovery of a new mineral or vegetable product, possessing a commercial value, and applicable to useful purposes; or the local fabrication of a commodity previously imported from abroad; but the aggregate results of all these separate operations escaped attention. They are now* presented in a collective form; and when (says the author), it is remembered that we are but a handful of people, occupying a country which has been colonized for less than a quarter of a century; that we inherited nothing of that which we possess; that we have had an immense amount of rough work to perform, in order to render the country habitable, passable, and capable of affording us sustenance; and that we are severed by the circumference of half the globe from the appliances and the civilization of the Old World; it must be admitted that our time has not been mispent, and that the skill, the industry, and the inventive genius of our population, in no wise fall below those of their European and American compeers."

Prefacing a most interesting and useful official work—which, adopting the writer's own words, may be said to comprise "a history of the past, a record of the present, and a prophecy of the future"—we find the foregoing, referring to its *general* object; the *more immediate* being, as noted below, to produce a comprehensive Catalogue of the Exhibition of Colonial Resources, opened at Melbourne, on the 1st of October, 1861, instituted as a preliminary to the International, now being held in London.

Some introductory essays, treating the questions set forth in our title, and ably written by gentlemen holding official and professional positions in the colony, materially relieve the work of the flatness which frequently characterises mere records, and imparts a very uncommon interest to it; and, in addition, some valuable statistical information is communicated in the Commissioners' Address, delivered to the Governor, Sir Henry Barkly, on the occasion of the opening of the Exhibition.

By it we are informed that, "in the year 1851, when the first great Exhibition was inaugurated in London, the population of Port Phillip was 77,345, and is now 540,671; that the lands sold have increased from, in 1851, 334,308 acres, to, in 1860, 3,994,433 acres; those under cultivation in the former year being 52,176 acres, while in 1861 they were 419,252 acres. Places of public worship have increased during that decade from 39 to 874! and now afford accommodation to 150,000 persons. Thirty institutions, a university (granting distinctions equal in rank to those in the mother country), 880 schools, and a public library, together with many establishments devoted to scientific, literary, and intellectual pursuits, are also maintained. As an evidence of the expansion of operations in the arts, manufactures, and trades, it is reported that, when the building was erected in 1854, to receive the contributions to the Paris Exposition of 1855, but 37 trades were represented; whereas, on the last occasion, applications for space were received from 236 branches of the mechanical and industrial arts."

In the formation of roads and bridges £5,272,620 had been expended; and in the erection of public buildings, £3,391,753 odd. Of railways, 100 miles of government lines have been opened, and 182 are in course of construction; 1504 miles of electric telegraph are also established, maintaining (except in the case of the submarine, interrupted at present) connection with the adjoining governments of Adelaide, Hobart Town, Sydney, and Brisbane, the capital of Queensland.

Mr. W. H. Archer (Registrar-General of Victoria), in one of the preliminary articles above referred to, which, though modestly styled "a *brief* statistical sketch," is, in truth, quite a perfect history in itself, extending over some 90 pages, and treating of the population, emigration, area of colony, occupations, mining, agriculture, manufactures, imports and exports, postal and other communications, &c., &c., has the following respecting "wages and consumption," which will be read with much interest:—

"New countries are subject to considerable fluctuations in the rates of remuneration paid for labour, and to this rule Victoria has not been an exception. But it is a remarkable fact, and at first

sight contrary to the understood laws of supply and demand, that in those years when immigration has been at the highest, the rates of wages have invariably risen above those of other years, and on cessation of immigration there has followed a corresponding depression. Thus, in the years 1852, 1853, and 1854, in which, respectively, the large numbers of 94,664, 92,312, and 83,410 immigrants arrived, the prices of labour were higher than at any other period in the history of the colony. In the four succeeding years, as fewer people arrived, wages declined somewhat, but still continued high until the last two years, when immigration having fallen to only about 30,000 persons a year, the rates of labour, although still far above those obtaining in older countries, and, perhaps, also higher than those paid in any other British colony, have been lower than at any other period since the discovery of gold. The following table shows the rates paid in 1854, the last of the three years above mentioned, when, if ever, the effect of the large previous immigration should have been felt; in 1857, when immigration had considerably declined; and in 1861, from the latest quoted rates of the period.

"Rates of Labour, 1854, 1857, and 1861.

Description of Labour.	1854.	1857.	1861.
AGRICULTURAL LABOUR.			
Farm labourers per week, with rations	£ 1 15 0	£ 1 5 0	£ 0 15 0
Ploughmen, do.	2 0 0	1 10 0	1 0 0
Reapers, per acre, do.	1 5 0	1 0 0	0 15 0
Mowers, do.	0 15 0	0 8 0	0 6 0
Threshers, per bushel do.	0 1 0	0 0 9	0 0 6
ARTISAN LABOUR.			
Masons, per day, without rations ..	1 12 0	0 16 0	0 14 0
Plasterers, do.	1 10 0	0 15 0	0 12 0
Bricklayers, do.	1 8 0	0 15 0	0 12 0
Carpenters, do.	1 8 0	0 14 0	0 11 0
Blacksmiths, do.	1 10 0	0 14 0	0 10 0
MISCELLANEOUS LABOUR.			
General labourers, per day, without rations	0 13 6	0 9 0	0 7 0
Stonebreakers, per cubic yard, do. ..	0 10 0	0 6 0	0 3 6

"The only class whose wages have not fallen to any great extent has been that of female domestic servants; and it is a significant fact that female immigrants have constantly been brought to our shores under the auspices of Government, whilst other assisted immigration has for several years been all but stopped; and also, that for the last two years, the net immigration of females has exceeded that of males in the proportion of 140 females to every 100 males in 1859, and in the proportion of 213 females to every 100 males in 1860, without creating any reduction in the rates of female labour."

"In respect to the general reduced rate of wages already alluded to, it must not be lost sight of that, although at one time the artisan or labourer was receiving in actual money a far higher emolument than at present, yet the cost of almost every article required for the use of himself and family has declined in even a greater ratio than his own earnings. An attempt has been made, in the following table, to show what has been about the actual weekly cost of living to an artisan and his family during the terms for which the rates of wages have been given:—

"*Estimate of the Weekly Expenditure of the Family of an Artisan, consisting of a Man, his Wife, and three Children, in 1854, 1857, and 1861.*

Upon the supposition of the following Rates of Consumption, &c.	1854.	1857.	1861.
Bread, 28 lbs.			
£ 0 12 6	£ 0 6 8½	£ 5 3	
Beef or Mutton, 21 lbs.			
0 15 9	0 12	0 6 10	
Potatoes, 31 lbs.			
0 5 10½	0 2 10½	0 1 0	
Flour, 5 lbs.			
0 2 2	0 1 2½	0 1 0	
Tee, 1 lb.			
0 2 0	0 2 6	0 2 9	
Sugar, 6 lbs.			
0 3 0	0 2 6	0 2 3	
Soap, 3 lbs.			
0 1 0	0 1 0	0 0 9	
Candles, 3 lbs.			
0 1 6	0 1 4	0 1 2	
Milk, 7 pints			
0 7 0	0 3 6	0 2 4	
Butter, 3 lbs.			
0 9 0	0 5 6	0 3 0	
Firewood, ½ ton			
0 12 6	0 6 0	0 4 0	
Water, 1 load			
0 10 0	0 5 0	0 2 0	
Rent of a Cottage			
2 0 0	0 10 0	0 6 0	
Clothing			
0 15 0	0 10 0	0 6 0	
School Fees for Children's education			
0 3 0	0 3 0	0 3 0	
Total weekly expenditure ..	7 0 8½	3 18 4½	2 7 4

"The weekly wages of an artisan, if working full time, would, in 1854, at 30s. a day, amount to £9 a week; in 1857, at 15s. a day, they would amount to £4 10s. a week; and, at the present time, at 12s. a day, they would amount to £3 12s. a week. Thus, in 1854, he would have each week £1 19s. 8d. above his wages; in 1857, he would have 16s. 7½d.; and, at the present time,

* Catalogue of the Victorian Exhibition, 1861. Published on behalf of the Commissioners for Victoria, by J. G. Knight, F.R.S.E.A., Secretary, Victorian Department, International Exhibition. London, September, 1862.

£1 4s. 8d.—the latter being a surplus actually in excess of that of the middle period, and in power of purchasing, certainly far above that of the first. Of course it is impossible to say to what extent in the different years deductions should be made for non-employment; but supposing the days lost were on the whole equal, the comparison would remain fair. The climate of Victoria is so far favourable to out-door operations throughout the year, that but little broken time is made in consequence of the weather. Since 1856 the recognized labouring day of Victoria has been limited to eight hours.

"In Melbourne and part of the surrounding districts there is an abundant and constant supply of water at high pressure from the Yan Yean reservoir. This in reality is an artificial lake, and is formed by the construction of an embankment 1,053 yards in length and 50 feet in height, which connects two bluffs, between which had been the only outlet for the drainage of a watershed of about 4,000 acres. The lake or reservoir thus formed covers an area of about 1,300 acres, or somewhat more than two square miles, the greatest depth being 25 feet and the average 18 feet. The cubic contents in round numbers are about 38,000,000 of cubic yards, or 6,422,000,000 gallons. It is 595 feet above the level of Melbourne, and distant about 19 miles from that city. The communication between the reservoir and the line of pipes is effected by a 33-inch iron pipe, which is carried through the embankment at a level of three feet above the bottom. The head of this pipe is fixed in a square tower well, with arrangements for affording access to the valves, and for admitting water into the mains at heights of 3, 10, and 17 feet from the bottom. A second line of 33-inch pipes has been carried through the embankment, affording the means of doubling the supply to Melbourne whenever occasion may arise.

"In addition to the watershed of 4,000 acres from which this reservoir is directly supplied, a watercourse and tunnel have been constructed, connecting it with the River Plenty, and this additional supply is availed of whenever the need arises. The gathering grounds of the Plenty are computed to contain an area of about 60 square miles, which, taking the estimated available rainfall of the Plenty Ranges, would, after the fullest allowance for loss by waste, evaporation, and other causes, afford sufficient to fill the reservoir once and a-half annually.

"The cost of this gigantic work has been about £820,000,* the money for which was raised by Government debentures bearing 6 per cent. interest. The expenditure was entrusted, by an Act of the Legislature, to the Water and Sewerage Commission, already referred to, whose duties and powers are now merged in the Board of Land and Works. The present income from the water supply is considerable (about £60,000), but this will be much increased as the supply is extended through the various suburban districts, it being estimated that the future extensions will yield about 70 per cent. per annum on the cost of such extension.

"The population of Melbourne and the surrounding districts is about 123,000; and it being estimated that the Yan Yean would suffice for the supply of 200,000 persons, at the rate of 100 gallons per head per day, it will be more than sufficient for the wants of the residents for many years to come. The supply to London is at the rate of 20 gallons per head per day; Wolverhampton, 11 gallons; Nottingham, 40 gallons; Liverpool, 11 gallons. The water is delivered in Melbourne on the constant service principle, and at high pressure, and has proved of great value in extinguishing fires. It is also used as a motive power, and has also partially supplanted steam in driving machinery."

NATIVE MANUFACTURING ESTABLISHMENTS.

No. I.

ALTHOUGH unhappily in this country, and in this city especially, there is a very wide space generally intervening between our "hives of industry," yet the comparative few that remain are in most instances indigenous to the soil; and with all the rivalry brought to bear by our English neighbours, still maintain themselves triumphant against competition.

Ulster, Munster, Leinster, and Connaught have each their respective manufactures of unapproachable excellence; Belfast, Lisburn, &c., producing linens of spotless white; Derry almost supporting itself by a vast shirt trade; Balbriggan's thousands of looms yielding stockings not to be equalled in texture and beauty; Limerick, its world-famed lace admittedly causing all attempts at imitation to pale into insignificance; Dublin, its unrivalled poplins and tabinets; the western provinces their woollens and friezes, &c. Of each of these we shall have occasion to say something in this series, together with many others

* This amount includes expenditure in various items, amounting in the whole to £273,000, which the Commissioners considered should not be chargeable against the Yan Yean scheme, viz.:—Temporary supply to Melbourne, £83,000, and cost of Tramway, £150,000; expended on sewerage, £32,000; besides superfluous plant, land, fire-plugs, service-pipes, &c.

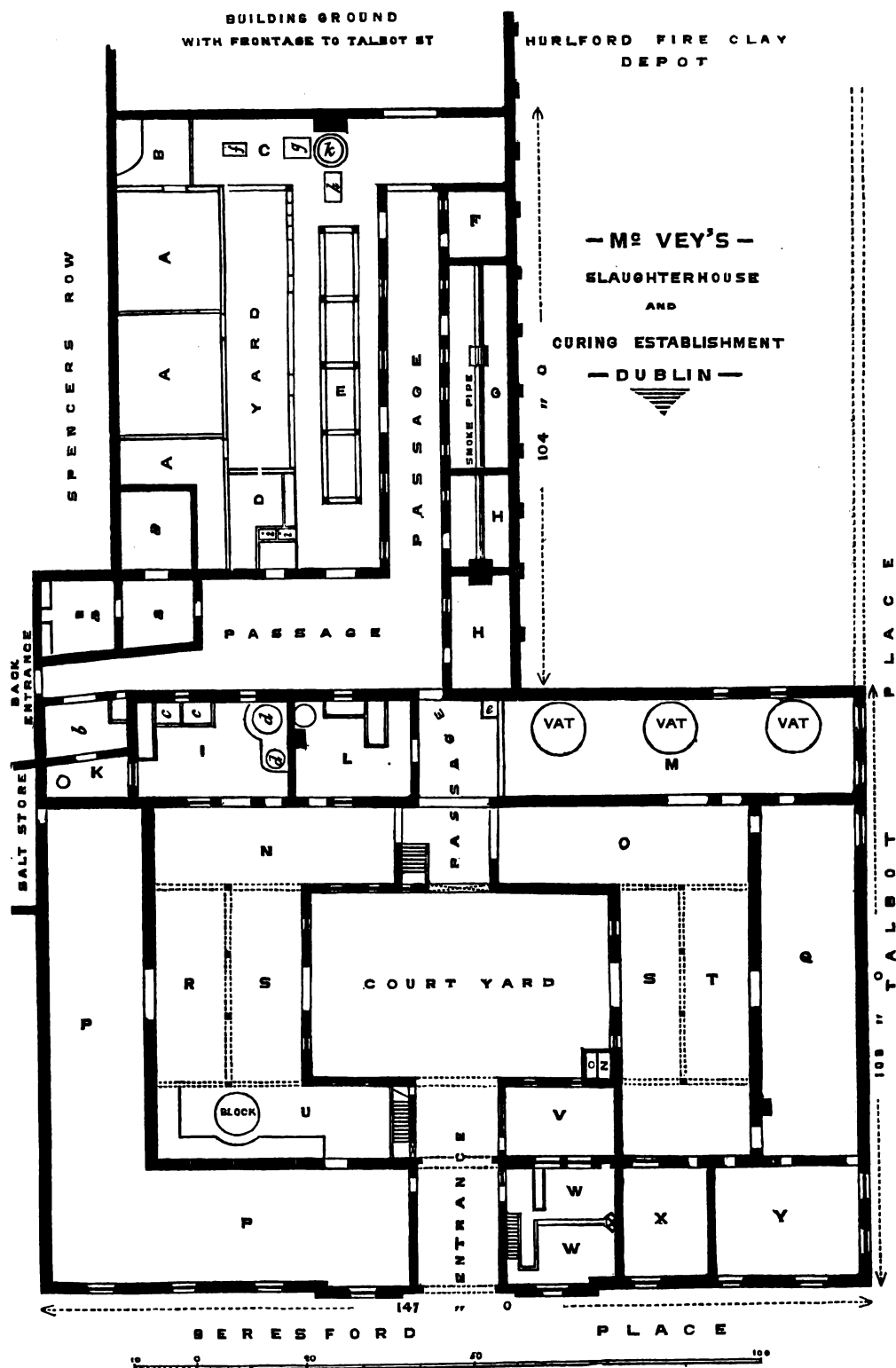
for the present nameless; and pursuing the survey as may best conduce to convenience, we commence with a notice of a local establishment which, though not ministering to the advancement of art, but to the requirements of nature rather, is, nevertheless, as an industrial concern, affording vast employment to native hands, and a perfect model in its arrangements entitled to special notice. Of this, for obvious reasons, facilities have been presented for including a plan likewise.

With that large and substantial block of building, showing a frontage of 147 feet towards Beresford-place, and popularly known as "the Queen's Mews," some historical reminiscences of painful memory are associated, for it is related, and remembered by many older heads than ours, that, in the year 1798, during the rebellion, it was used as a monster gallows by Beresford, numbers of the unfortunate rebels being "swung up" without judge or jury, and after undergoing the painful process of "tarring all over." Originally erected to provide livery accommodation for the employés of the Custom House (good times those!) it so remained until about twenty years ago, when it fell into the possession of the late Commissary General Luscombe, who converted it into a great auction mart and stores. In the year 1856, the fee simple thereof was purchased in the Incumbered Estates Court by Mr. Edward M'Vey, ham and bacon merchant and curer, the present proprietor, whose largely increasing export and import trade demanded more extensive premises than those held by him at the time in James'-street. In adapting them to the requirements of his business, Mr. M'Vey expended a considerable sum, and the arrangements effected under the professional superintendence of Mr. J. J. Lyons, of Lower Gardiner-street, architect, have elicited favourable comment. Mr. Hemans, C. E., in his able report to the General Cattle Market Company, refers specially thereto in the following terms:—"There are, no doubt, some well-conducted establishments, especially among the pork butchers, for instance, Mr. M'Vey, the well-known provision merchant." The three essential elements of cleanliness, perfect sewerage, and ventilation, are here conspicuous; and in any of these regards, Mr. M'Vey's establishment will successfully stand the test of comparison with any others in the kingdom; as to the quality of his manufactures we do not profess to be an extraordinary authority, but we believe them to be highly appreciated, and daily growing in public favour.

We will now, by reference letters, conduct our readers through the process of the manufacture. AA, are pens into which the swine are removed previous to slaughter, a day or two being allowed them for rest before their introduction to the butcher. At B they are hung up, and thence transmitted alive to C, where "the fatal blow being struck," the blood is allowed to congeal at f and g. Thence the carcasses are taken to the scalding pan k, where they are thoroughly cleansed both of external and internal impurities, the hair scraped off, &c. E represents a series of racks—technically "bawks"—on which the carcasses are suspended for twenty hours or so; they are then carried to the cutting block U, where the complete dismemberment takes place, the several parts being transmitted immediately to the ham (P) and bacon (Q) beds respectively. Other accessory operations have, however, also to be gone through; at F, G, and H they are dried and smoked; at I the lard is manufactured; and at K the bladders are hung up, the apartment being heated by a stove. L is for washing the entrails; and M the navy and mess beef and pork store. N, a lard store; O, bacon store; R, reserve house; SS, cooling sheds; T, packing do.; and V, wholesale offal shop. WW are retained as offices for the proprietor and his clerks; and behind them are X, a salt store, and Y, an offal curing-house. In portions of the building other minor apartments are on the first floor. The premises extend the entire depth to Talbot-street, to which it has a good frontage, and which will, most probably, shortly be taken advantage of by the proprietor for the principal entrance, with a handsome architectural front. Meantime we may suggest that it is incumbent on the Corporation authorities to offer facility for such a probability, by providing suitable street sewerage, at present, in some respects, incomplete.

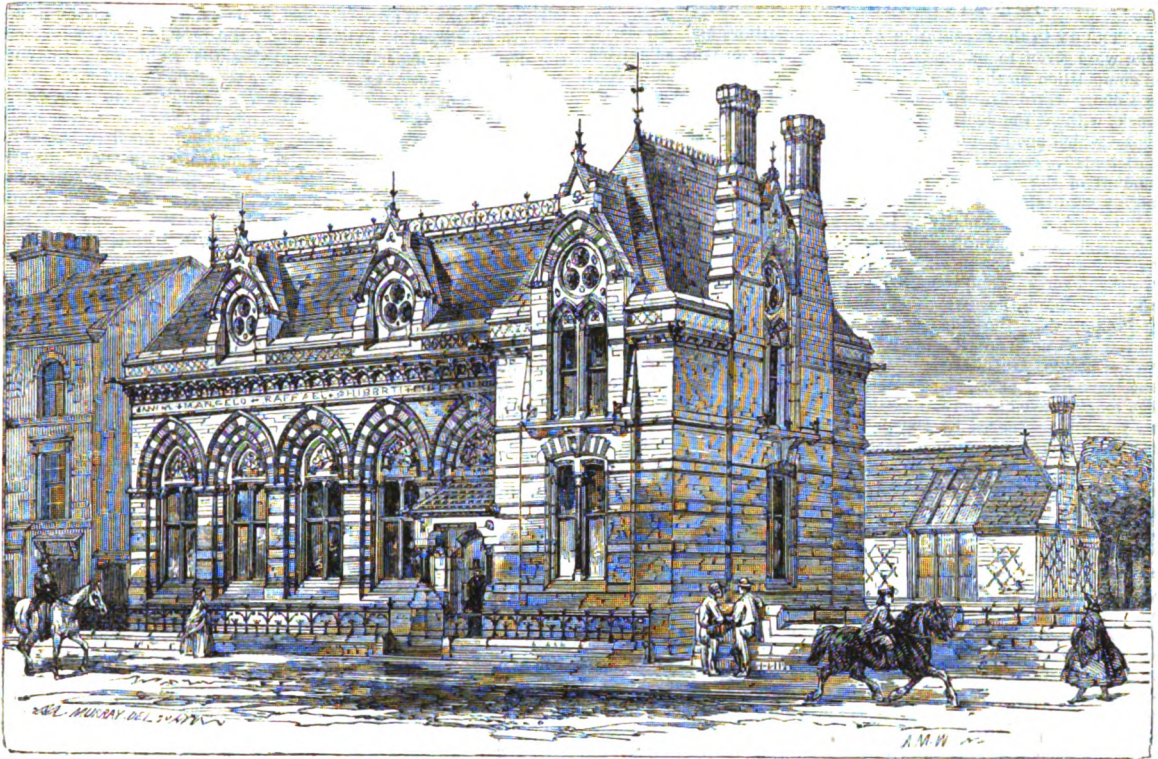
During the killing and curing season, which will shortly commence, very many thousands of pounds' worth of pork may here be seen in its various stages, the beasts being mostly purchased personally by the proprietor himself at fairs; and it may not be amiss to add, that he has the reputation of being one of the best judges, both as to weight and quality, of any buyer in the kingdom. In conclusion, we are permitted to remark that any respectable party desiring to go through the concerns (and they are well worth an inspection), will meet with every courtesy from the enterprising proprietor.

Messrs. Fergus Farrell and Son, of Capel-street, have placed at the disposal of the Royal Horticultural Society a silver cup, to be given at the spring show of 1863.



THE "QUEEN'S MEWS," ADAPTED TO THE PURPOSE ABOVE NAMED.

MR. J. J. LYONS, 26, LOWER GARDINER-STREET, ARCHITECT.



SCHOOL OF ART, COVENTRY.

MODERN ARCHITECTURE.*

MR. JAMES MURRAY, an Irish architect of professional eminence practising in England, has undertaken the production of an illustrated work under the above title, to appear in monthly parts, and when completed to contain about 60 plates of Gothic and Classic buildings executed since 1850. The first part is before us, and comprises, in addition to a wood engraving of the School of Art, Coventry (which, by kind permission of the author, we transfer from the title-page to our columns), some beautifully executed lithographs of Church of St. James, Stratford-on-Avon—external and internal perspectives and plans displaying considerable merit—elevation and plans of a double villa, and of a drinking fountain at Stoke-upon-Trent. These are not only Mr. Murray's own designs erected at various periods, but are also drawn on the wood and stone respectively by himself in a style of excellence that could not be surpassed in neatness and effect. The press work is by Messrs. Day and Son, the eminent London lithographers. In the succeeding numbers a variety of other subjects, for the most part, if not wholly, Mr. Murray's executed designs likewise,—embracing churches, schools, warehouses, terrace and villa residences, almshouses, &c., will be presented; and judging from the admirable manner in which the author has fulfilled the first part of his task, we doubt not that a very handsome and useful book will be secured at its completion. Every architect should have it.

The following are descriptive particulars of "The School of Art:—
"The building will be constructed principally of brick, with facings and ornamental work of Bath stone, relieved with a moderate amount of carving and other enrichment. The roofs will be of steep pitch, and covered with ornamental slating and ironwork. A few years ago the Committee advertised for designs for this building. Some twenty-two or more were sent in from local and other architects, from which two were selected; and, after a second competition between the authors of these selected designs, Mr. Murray, then of London, was declared the victor. The commencement of the works was delayed for want of funds, until Mr. Carter's donation opened the way, and a contract has since been entered into, and the walls of the building are well out of the ground. On the ground floor of main building facing the street, will be a good entrance hall and staircase (leading to exhibition-room on upper floor), class-rooms for ribbon drafting and female students, private studio for the master, and rooms for keeper. At the back part of the building will be an

elementary class, size 80 feet by 37 feet, lighted from roof and by side windows; also painting and modelling-rooms, commodious lavatories for both sexes; cap and cloak-rooms. On the upper floor (of front building) will be a room for the exhibition of pictures, lighted from the roof, so as to leave all the wall space available. The size of the room will be 50 feet by 20 feet, and similar to one of the picture galleries at South Kensington Museum, which we believe it will resemble in its arrangement. Adjoining is a room about 80 ft. by 16 ft., which will be used as a library, and for the committee meetings and general purposes. The cost will be £2,400."

[We beg to direct the attention of architects, builders, and others to the following notice:—]

NEW PRICE BOOK FOR IRELAND.—The want of a properly constituted work of reference as to the value in Ireland of the several departments of artisans' labour and the materials employed in the erection of buildings of various classes both in the metropolis and the provinces has long been a matter of notoriety; Irish architects, builders, engineers, building surveyors, clerks and foremen of works, and others, being obliged to depend very much for information on English price books and on the Ordnance Schedule, neither of which, it is well known, present reliable data for calculation under the numerous contingencies that present themselves. It is proposed, therefore, to collect from the best sources of information all such particulars as will ensure the annual production of a standard authority, defining clearly everything connected with the valuation of constructive and decorative works in Ireland, and even more comprehensively than elsewhere. The laws of contracts and liabilities and prevalent customs in the trade will be treated, and price lists of the principal stone and slate quarry and iron masters in the Kingdom added, together with an annual resumé of incidents and progress. MR. J. J. LYONS, architect (assisted by some of the most eminent building surveyors in Ireland), has undertaken the task editorially, and is now prepared to receive subscribers' names, who will be furnished with the work complete in six parts at one shilling each, commencing January, '68.—Dublin, 26, Lower Gardiner-street.

P.S.—As the work will be an invaluable permanent record for advertisers, a limited space will be apportioned.

DRY ROT.

A SUBSCRIBER begs to inform your correspondent in last number on the subject of Dry Rot, that he has seen a solution of the water of gas tar tanks applied successfully in stopping its progress.

* Illustrations of Modern Architecture, ecclesiastical, civil and domestic. By James Murray, F.R.I.B.A., Coventry.

THE WINTER GARDEN DESIGNS.

CONTRARY to the expectation of the competitors and ourselves, who were given to understand otherwise, the designs submitted in competition for the proposed winter gardens, concert halls, &c., at Coburg Gardens, were exposed to public view on Wednesday week, without the decision having been arrived at. For their extent—which has by no means numerically resulted, as reasonably anticipated, considering the magnitude of the work and the amount of the premiums offered—they must be admitted to be highly creditable to the majority of the authors (*twenty-four* only in number), and especially so to *six* of our local architects, whose designs display much merit and artistic manipulation. Indeed, in regarding the numerous elaborate drawings now suspended on the walls and screens, and prepared at vast mental and manual labour and expense, on the mere chance of pecuniary recognition, a feeling of sympathy for those doomed not to be successful suggests itself; and of such unfortunates there must necessarily be many, as only two premiums are offered—viz., £150 for the best, and £75 for the second best plan. Even those gentlemen who partly labour *con amore* have not the satisfaction of finding their works credited to the proper source by the public, who are kept in ignorance thereof, by the adoption of mottoes instead of the author's real name, a course of proceeding we have always held to be a mere mockery of justice, and in no way tending to an impartial decision, as all the parties generally concerned—viz., committee, referees, officials, and the authors themselves—are as fully acquainted with the names of the designers as if they were conspicuously attached to the drawings. However, in deference to the wishes of the Committee, we shall not, pending the decision, publish the authorship, nor make any remarks calculated to act prejudicially on the individual claims of the authors to impartial consideration. We feel bound, however, to observe that some of them have lost sight of two very important points to be considered—viz., expenditure and aspect; and in the former case, unless fortified by *bona fide* estimates from respectable contractors, prepared to proceed with the works on such estimates, the authors may possibly meet with obstacles in substantiating their claims to a premium. On the other hand, we think that the Committee expect too much accommodation for too little money; and though they may succeed in procuring it by cutting the specification very closely, another £15,000 or so, to the stipulated amount (viz., £35,000) would have been but a wise step. We shall carefully note if it will not so prove before the accounts are wound up.

The designs are arranged and catalogued alphabetically, ranging from A to Y, and exhibit a variety of ideas both as to internal and external construction and style, a couple of them being somewhat of the Crystal Palace fashion; another, a second (and decidedly improved edition) on a reduced scale, of the International building at South Kensington; another partaking more or less of its character; while others exhibit facades which might not inappropriately denote an imperial palace or great public offices; and, lastly, there are two or three extraordinary conceptions showing a regular cathedral arrangement of nave, aisles, transept, chancel, tower, &c., in debased Gothic, and a huge Oriental structure (of Turkish bath type), respectively. The authors of these can hardly have been serious; if so, there is no accounting for taste, nor for the peculiarities of the artists (?) of the nineteenth century.

A (*Motto—Dum Spiro spero*), said to come from London, has less comprehensive plan than the majority of the others submitted, but the elevation, though simple, is effective, partaking of the French style, and shows a low range of building 90 feet wide, with pseudo arcades and two transepts 52 feet wide with curved rib roofs (flat at tops, enclosed by metal railing), and forming deeply-recessed porches, one leading to concert halls, which occupy a wing, and are approached through a principal hall, with minor apartments off same, and the other to the Exhibition and Winter Garden Department, comprising about two-thirds the area of the whole. We have little doubt that this design is within the mark as regards cost.

B (*Hoc propono*), has strong resemblance to the Sydenham Palace, and is consequently of iron and glass construction; the concert rooms, large and small respectively, are placed centrally at each end, from which entrances are obtained, and are parallel with Earlsfort Terrace, a wide space intervening and connecting by a transept the Winter Garden which extends along the entire of front and rear elevations. The drawings, seven in number, are well handled and are—like the preceding—said to come from London.

C (*Blue Star*), a very artistically coloured perspective shows this design to great advantage; geometrical elevations of each face in plain tint, according to the instructions, being also furnished. The structure is a composition in Italian style, partly of brick and stone, and partly of glass and iron, displaying much ability in design and pleasing grouping. The main features of the internal arrangement are, that the concert halls occupy left and right of a spacious central hall, 60 feet wide (with staircases to each), ap-

proached from Earlsfort Terrace, through a *porte cochere* and inner vestibule; the Winter Garden, commanding a southern and western aspect, as it extends along the rear and left flank, and the Exhibition department occupying the right wing thorough from front to rear, except where cut off on ground floor for refreshment-rooms, and gallery stairs. Contiguous to this, and to square the site, a yard is portioned off, with suitable residence for manager enclosed. The picture galleries occupy the first floor of the extreme right flank, and are divided into suitable compartments; the polytechnic museum is placed behind the small concert room, and has lecture theatre over. There are three principal entrances provided, viz., a general one, central, and a special one to Winter Garden and Exhibition building respectively at either end. A dome, rising over the central hall, forms an imposing feature. The principal concert hall is 140 x 75 x 75, containing sitting accommodation for 1800 persons in body of hall, and in gallery for 950; lighted by side and end windows. We understand that an estimate by an eminent building firm accompanies these drawings, and does not exceed the stipulated amount. The author is a local architect.

The architect's own estimate is	...	...	£36,600
Omitting water tower and staircase dome	...	...	1,200
			£35,400

Substituting cast iron columns in front porticos in lieu of stone	...	...	400
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Specified sum £35,000

D (*F. W. Shields,* C.E., London*), the elevation, of which a coloured perspective is furnished, bears similarity to the Sydenham Palace; the main feature, the semicircular midway transept being imitated. The plan is less comprehensive than the majority of the others, the concert halls occupying each wing, with Winter Garden intermediate.

E (*Useful and Ornamental*). The perspective elevations of this design are remarkably striking, being tinted in Indian ink, relieved with white paint, in first-class style, and the most advantageous points of view are adopted. Both as to general contour and in the prominent detailed features there is a marked resemblance to Captain Fowkes' building at Kensington—so much so, indeed, that even an unpractised eye in architectural matters at once connects his name with the authorship; but it may prove otherwise, and if so, we shall not be surprised to find that others associated with him in its construction are anxious to achieve a *double* purpose in seeking to provide Dublin with an improved edition on a smaller scale. It may not, perhaps, be a recommendation to trace a resemblance to the building in question, which externally is universally condemned for its ugliness, its designer being one of the best abused architects in the three kingdoms just at present; but the faults of the original have been more or less avoided in this, which to our mind would ensure a pretty building in execution, as the whole certainly produces a pretty picture on paper. The familiar dome is a prominent feature, polygonal on plan externally, but apparently by the draughtsman's error made circular on the interior perspective, which in other respects is most faultless and artistically executed. In the interior views of the concert rooms there is unquestionable exaggeration as compared with the plan—only an artist's licence, we presume, however. The arrangements of the ground plan show the two concert rooms in left wing at right angles to each other, with their respective orchestras in close proximity, and separated by a 9-inch wall, a palpably defective disposition, as the sound from one would most assuredly reach the other (in spite of the author's undertaking to construct them impervious), and in practice be productive of great annoyance to the respective audiences. The placing of the orchestra at the side of the smaller one is, to say the least, peculiar, and the acoustic results may be questionable. Ample and separate entrances and exits are provided, though, in the case of the small concert hall, somewhat too sudden. The authors have adopted a novelty in the fitting of the hall, which they propose "to line and form ceilings with thin pieces of wood, laid side by side, and covered with canvas, to be painted and decorated, rendering

* We are not quite sure that the real name of the authors being attached to these and other drawings may not, in strictness, disqualify them, as the instructions to competing architects are explicit, viz., "plans, &c., to be addressed under seal, with motto or fictitious signature," &c.; however, if the Committee think otherwise, neither we nor (we are confident) the majority of the competitors are disposed to question it, on the grounds referred to in our preliminary remarks. We have also to remark that "coloured" drawings were generally understood to be prohibited, as the instructions say "the drawings to be either finished in lines, or tinted with Indian ink;" and we know that one of the competitors who had prepared a very beautiful coloured drawing, withheld it, fearing that it might be assumed that he sought an undue advantage over his brother competitors. These, however, are at best only technical objections, and can in no way affect the merits of the designs, which we are quite confident will receive every consideration; but where most effective drawings can be produced in plain Indian ink, as required in the instructions, it would have been but prudent for the authors to have limited themselves thereto.

them, as they allege, as perfect for sound as the most richly-toned musical instrument, and enabling the lowest note to be distinctly heard in the most distant part of the room." The orchestra, "by peculiar mechanical contrivances," is intended to be moveable at pleasure. The Winter Garden has a total length of 270 x 65 feet high, and contains an area of 30,000 superficial feet. It must, however, be noted that it is surrounded by buildings, and depends on light from above. The picture galleries are 330 feet in length, giving 740 of hanging space, having 12,500 superficial feet of wall space, and are lighted from above. As regards expenditure, the authors say that "the repetition of the same parts in iron castings, and the facilities thus presented for the introduction of machinery in the manufacture of the different parts of the buildings, enables them to offer an extensive building at an unusually low cost." [Ought not this apply to nearly every design in the room as well as to that in question?] They confidently state that the cost will not exceed £32,000! no mere guess, but the result of *bona fide* tenders. The Winter Garden occupies about two-thirds the breadth of the remaining length, and is enclosed at either side by offices and other apartments on ground plan, and on upper floor by the picture galleries, polytechnic museum, &c. The plan exhibits comprehensiveness, approaching to complication, within a limited space, but apartments are shown thereon which, in practice, would most probably be dispensed with.

F (*Recreation*) comes from Belfast, and is the production of a gentleman who has won many (some recent) competitions. The Classic style is adopted for the elevation, which, as regards the main building containing the concert rooms, &c., is much more massive than the others. The Winter Garden, however, forms an adjunct of somewhat lighter character (with octagonal towers terminated by double-domed roofs at the angles), but is boarded at top over semicircular girders, and has open ends and a range of clerestory windows on each side. The plan is for the most part conveniently and simply arranged, the author probably deeming various apartments provided by others as incompatible with the expectations of the committee. The requirements, however, as regards the concert rooms, seem to have been judiciously studied (the larger one being after the Ulster Hall model), and the Winter Garden and Exhibition buildings, which occupy the entire extent of the rere and the right flank, provide at least the full amount of accommodation sought for.

G (*Earlsfort*). This author is less ambitious evidently than any that have preceded him, and furnishes only four drawings, inclusive of a coloured perspective, displaying little labour in production. The plan, which is generally well arranged, shows the concert rooms parallel with Earlsfort-terrace, and separated widely from each other, the Winter Garden occupying the rere.

H (*Decidedly* —). There seems to be an incomplete sentence in this motto; and without the slightest danger of prejudicing "the artist's" chance of consideration for his two drawings (save the mark), we would supply the deficiency by adding the word *ridiculous*.

I (*Unity*). To this we would simply say "ditto."

J (*Triangle enclosed in ring—Peace, Love, and Harmony*). Ten drawings, whose beautiful execution elicits approbation from all visitors to the gallery, comprise this set, including three perspective elevations handsomely framed, glazed, and tinted in a most superior manner in Indian ink, and forming quite an exhibition in themselves. The style of architecture prevailing throughout this design is the modernized French edition of Classic, with moderate ornamentation, however, and displaying the Mansard roofs on each projecting portion. The plan covers the entire of the prescribed area—viz., 465 by 235 feet, and the ranges of building average from 50 to 60 feet in height. The concert rooms (measuring 168 x 80 feet, including orchestra, and 90 x 68 feet respectively) are placed at either side of a great entrance hall, 93 x 75 feet, approached through a *porte cochere* and vestibule, with spacious corridors communicating; and the Winter Garden and Exhibition building occupy the rere, commanding the western aspect, and are of cruciform shape. The picture gallery of ancient masters is placed behind the large concert hall, and that for modern masters behind the smaller one, each being one storey high, and lighted from above. In the basement extensive accommodation is provided for storage, which would produce an annual return for the outlay so incurred. As a composition, this is one of the most architectural designs submitted, and the internal arrangements are admirably contrived, although more comprehensive than many of the others in most respects, but less faulty generally.

K (*E. M.*). These designs are very unpretentious.

L (*Exhibitor*). Ditto. A Parthenon portico stuck on a range of ordinary houses, comprises the principal elevation.

M (*Eblana*). The author's predilection for ecclesiastical architecture has clearly led him into a mistake fatal to his pretensions in this competition, for no juror's views and his are likely

to accord on the assimilation in style and arrangement of a temple of science, art, and pleasure, to the usual type of that by immemorial usage dedicated to the worship of the Most High. We should uselessly appropriate space to its description. It is said to come from Birmingham.

N (*Vive ut vivas*). Ten drawings, creditably executed, including a well-tinted perspective in sepia, show this design, which is by the junior partner and local representative of an eminent firm. A model in boards, with the detailed features drawn and shadowed thereon, is also added. The style adopted is of Byzantine composition, exhibiting irregular ranges of building; two tall towers of unequal height, one with a clock, but both for water reservoir purposes, forming conspicuous objects in the group. The more permanent portions of the building containing the concert rooms, &c., are placed in two blocks in the right or northern wing—the Winter Garden and Exhibition building—of form extending 272 feet—occupying the balance of the area of 465 by 235 feet, which is fully covered, and therefore securing a southern and western aspect, so desirable for the growth of plants, &c. Separate entrances are provided to each, that to the Winter Garden being central under a verandah; and the authors have carefully arranged ample means of exit likewise, which is an acknowledged desideratum. The picture gallery is placed in a one-storey building, in the left wing, and parallel with Earlsfort-terrace, the polytechnic occupying a nearly corresponding space at rere. The concert rooms are separated from each other by a corridor 25 feet wide, and are at right angles to principal fronts, the larger one being 156 by 80 feet, and the smaller 93 by 60 feet. In connection with these departments a variety of others is provided on both floors. Under the orchestra are retiring rooms, &c., and in the basement, stores are provided. A letter from Mr. William Doolin, a highly respectable and competent building surveyor, attached to the drawings, states his belief, "after careful calculation," that the works in accordance therewith could be executed for the stipulated amount.

O (*Jespere obtenir une juste appreciation*). Both the arrangement and style of this design, which is by a Dublin architect, are very peculiar. The ground plan embraces a terraced Winter Garden, 310 by 140 feet, the terraces rising on either side to a height of 20 feet, the level of the galleries, which are laid out as conservatories. At north and south ends are refreshment room and statutory courts, each 100 by 20 feet; immediately over these are exhibition galleries, and above the latter again are picture galleries of same dimensions. A semicircular roof of 65 feet span encloses the garden; an uninterrupted view over a space of 350 by 220 feet being presented at a certain level by the arrangement. The height to ridge of roof is 100 feet. A bazaar apartment occupies on ground floor a bowed projection central on principal elevation, and terminated by a dome. At either side are piazza entrances. The north wing is devoted chiefly to the concert rooms, &c., to which two colonnade entrances and halls lead, the large hall being 115 by 70 feet, with wide galleries on three sides, the orchestra presenting an additional space of 60 by 24 feet. The small concert room, museum, and theatre are on the gallery level. The two exhibition halls, 70 by 35 feet, are on ground floor. The minor arrangements seem to have been attended to minutely. Although the drawings are not as elaborate as others in the room, they evidence care and trouble, but are hung to great disadvantage at floor level. The author frankly admits that the £35,000 will barely suffice to cover the area in the plainest manner, not to speak of expensive ornamentation.

P (*Labor omnia vincit*). The "designer" does not practise what he adopts as a motto, for he has evidently employed as little labour, either manual or mental, as he possibly could. His production is an enigma to boot.

Q (*Fides*). Eleven drawings, including an external perspective in sepia (by an English artist, whose work has figured prominently in recent competitions here, but to greater advantage than at present), geometrical plans, elevations, sections, and details, too, show the design of a well-known local architect. We regret to say that, rashly prejudging the decision of the committee, and with manifest bad taste, a contemporary of acknowledged influence and ability has allowed itself to be led into a position of antagonism towards this author, and has, with editorial responsibility, published statements relative to the design, which, when analysed, prove not to be facts. In the first place it says that "rumour" speaks of its being the accepted design, owing to interest with the directory; and again, that the arrangements are so defective that egress for 3,000 people from the large concert hall is only obtainable through a single five feet open—the one assertion being a direct imputation on the impartiality of a committee, with such gentlemen as the Lord Mayor, Alderman Roe, Mr. Guinness, Mr. Dargan, &c., thereon, and who, it is well known, have not arrived at any decision as yet; and the second, such a one as must appear very foolish indeed to every person who understands a plan, and can distinguish the difference between the solidity of a wall and

an ope or opes therein. Leading either directly or indirectly to the body of the hall in question, there happen to be not less than ten opens of five feet each, the galleries being approached by two staircases and lobbies, one at either side. There is no corridor, however, circumventing the hall, as in some of the other plans—and this would seem to be the intended point of objection. The author says that the hall can be emptied in fifteen minutes. Of its other features we note that the Exhibition building, 170 by 100 feet, occupies the centre, with picture and polytechnic galleries at either side, the large and small concert rooms being on the extreme right and left, and the Winter Garden at rere. The latter has no galleries shown on plans. The arrangements for the accessory apartments are commodious. A mixed composition of Classic and Byzantine is employed in the exterior, which shows ornamental iron work on both fronts; that towards Earlsfort-terrace being highly ornamental. As regards cost, *Fides* says that, "having, after a careful consideration, concluded that it was impossible to carry out the wish of the directors, both as to accommodation and expenditure in the same design, he submits two designs, the one less comprehensive than the other. The respective estimates for designs 1 and 2 are £45,000 and £35,900.

R (*Pro re nata*). This is the Turkish Bath structure previously referred to, and we need not dwell on its features. It is said to come from the neighbourhood of the celebrated "Blarney stone."

S (*Four T squares enclosed in circle on tracing muslin*). What this confusion of lines is intended to represent is to us a mystery, and we shall not stop to inquire into it.

T (*A lyre enclosed in ring*). With little colour but charming sketching, this author (a native of Dublin, but practising in Belfast and Glasgow) presents a set of ten most effective drawings, showing a design which engages, from its simplicity and convenience, much attention. The great concert hall, elliptical in form, 127 by 70 feet, occupies a central receding position, parallel with Earlsfort-terrace, and is approached through a piazza therefrom, as also through an entrance hall 47 by 40 feet at southern end, in connection with which various apartments are situated. The Winter Garden, 465 by 100 ft., is continued along the rere, forming an annexe of glass and iron construction to the more substantial front buildings, and is terminated on southern flank in apsidal form. The small concert room, 95 by 56 feet, is in left wing, first floor. For it and the larger one there is ample corridor and staircase accommodation. On the elevation the large concert room is seen central between two pedimented Corinthian porticos, which form the wings; and rising over the piazza, the superstructure space being partially relieved of its flatness by sculptured paneling and symbolical devices. With some slight modification on this feature, which still is rather heavy, this design might be made a very classic composition. We believe that the cost is guaranteed not to be in excess.

U (*Suivez raison*). The set of seven drawings, which are in plain lines, with plans in black, show a design for an elaborate building in the Venetian style, arranging the concert rooms at either side of central hall, together with the various other apartments on this and upper floor required by the instructions, the Exhibition Building and Winter Garden extending along the rere. Although the plans exhibit a simple and commodious arrangement, the author (a local architect), does not seem to enter on this competition with his usual spirit.

V (*Veritas vincit*). This design shows the Exhibition building in the middle of a group of buildings communicating with the whole, and entered immediately from the grand front under an octagon-shaped dome. The Winter Garden, 183 by 64 feet, and 60 feet high, without galleries, except one refreshment room, so as to make it really a winter garden and not a conservatory, is in the rere. The large concert room has five external entrances, the principal being in front under a covered portico, and a state entrance; and the smaller one has also a covered portico in connection, and the requisite retiring rooms, &c. A storage and packing department is also added. The author is perfectly confident that his design can be executed for £35,000, adding that, "had he not a great dislike to put himself under a personal commitment, he could have an estimate from a competent contractor to carry out the work for that sum."

W (*Ecce iterum*). A practical man, who evidently intends that the decision must be in his favour, contributes this design with working drawings accompanying. It is creditable in its way, and of Crystal Palace fashion. The author seems to have taken an erroneous view of the requirements of the committee in some respects.

X (*F. Drake, London*) completes our list, and without comment, as it should necessarily prove anything but flattering.

[The Directors, comprising the Building Committee, met on Friday, at their offices, 112, Grafton-street. His Grace the Duke of Leinster in the chair. Amongst those present were:—The Right Hon. the Lord Mayor, Alderman George Roe, Benjamin

Lee Guinness, W. Dargan, Gilbert Sanders, M. Brooks, William Switzer, and William Foot. Having adjourned to the Exhibition building, College-street, after a lengthened discussion, during which time the public were excluded, a number of designs (we believe six, viz., C, E, J, N, Q, and T) were selected for further consideration. Another inspection took place on yesterday, and a further reduction was made. We expect the official announcement of the decision immediately.]

ELECTION OF A "PUBLIC ANALYST" FOR THE CITY OF DUBLIN.

THE Dublin Corporation will, on the 6th inst., proceed to elect a fit and competent person possessing medical and chemical knowledge, to act as a public analyst of articles of food and drink in the City of Dublin.

That our readers may fully understand the importance of this appointment and the issues depending thereon, we quote from some recent reports of the English Registrar General, in which we read the results obtained in many cities of England, in London more especially, through the instrumentality of the "public analyst."

The water supply of London is provided by seven joint stock companies who have each a district committed to it, and who, each and all, have therein a virtual monopoly by act of Parliament. Now, water is, as the registrar observes, "the life blood of cities," and as on its quality their salubrity depends to an extent which the observations of twenty-one years have determined, it becomes of the utmost importance to keep watch and ward over the quality and purity of the fluid. This "watch and ward" is maintained by the public analyst, Dr. R. D. Thomson, who, twelve times monthly analyses the water supplied by each of the companies, and publishes the result in a report to the Board of Health of the City of London. In 1849 the cholera epidemic carried off its victims in the London metropolitan districts in the following order:—

In the districts supplied with water from the Thames *above* Kew, 15 in the 10,000 inhabitants.

In the districts supplied from the Lea and the Ravensbourne rivers, 48 in the 10,000; and

In the districts supplied from the Thames *below* Battersea Bridge, 128 in 10,000.

There was but little difficulty in tracing the enormously excessive mortality in the latter districts to its true source. In water containing minute quantities of organic matter animalcules and muscular fibre have been found the element of zymotic diseases, and where, as in the case of the Thames water *below* Battersea Bridge, town sewage has actually been mixed with the fluid, diarrhoea and cholera are fostered and promoted. The quantity then of "organic matter," as a general rule, may be taken as a sure index to the quality of the water, and Dr. Thomson's analyses in 1854 very strongly favour the presumption that, in proportion with the number of grains of organic matter in a gallon of water will be the excessive mortality in the district supplied with that water. The Chelsea Company's water (Battersea) was found to contain 5.41 grains to the gallon, The New River Company's (River Lea) had 2.38 grains, and the Grand Junction's (Kew) but 1.92 grains.

Since 1854 six of the seven water companies of London have been forced, by its being proved that their waters were inferior and pernicious, to improve by taking their supply from higher points on the Thames and other rivers and by adopting a better system of filtration; this result, prolific of incalculable blessings to the inhabitants of the districts receiving the improved water supply in the district, the immediate consequence of the registrar's returns exhibiting the excessive mortality and the public analysts' report shewing the excessive "organic matter" in the water supply of certain districts.

The Dublin Corporation have wisely and patriotically determined on extending to this city the advantages of one of these schemes of protection for life and health—the only one in their power to so extend,—the system of periodical analysis of the water supply and other articles of food consumed by the people of Dublin. We trust that some one of our eminent and well-known chemists or physicians may be induced to undertake the duties of this most important office, not so much for its emoluments as for the opportunity thereby afforded to him to act as a great practical benefactor of the poorer classes, especially of his fellow citizens. We are sure that all sections of the corporation would unite unanimously to elect such a man, and every section of their constituents will hail such an appointment with grateful applause.

THE CEMENT TRADE.—A correspondent of the *Builder* (London) complains that "at the present day, when Free Trade is the rule, an Irish Government Board, through their specifications, insist on their contractors using no cements of any kind, plaster of Paris, or unglazed sewerage-pipes, except they are manufactured by a particular house;" and thinks it "a great injustice to manufacturers." The Board may or may not have a sufficient reason for the stipulation. We (*Builder*) cannot tell.

THE ARCHITECTURAL DICTIONARY.*

NOT long since we noticed the progress of this work—which, though somewhat tortoise-like in its movements, is, nevertheless, surely approaching the goal of completion—and we have now before us Part I of the volume for 1861, containing illustrations from letters F to P inclusive, and executed in a style of lithography which does all honour to the respective artists engaged, viz., Messrs. Kell Brothers, F. Bedford, and Vincent Brooks.

The first plate presenting itself, and referring to the article on "farm buildings," is a plan of the Imperial Farm (pastoral) at Vincennes, an establishment which we feel bound to say, judged by the merit of its arrangements, has no claim to be put forward in this standard work as "a model;" and we should not esteem the prominence so given as a compliment to British attainments in agricultural science, which would have, undoubtedly, supplied a much more suitable subject for illustration under this head.

The fountain in the Court of the Mosque of the Sultana Valides, Stamboul, is next placed under its proper title, and shows a semi-octagonal structure, with Gothic arches on each face, springing from columns, the interspaces having traceried panels, and the superstructure profusely ornamented with arabesque decorations; a rolled domical roof, with finial of bold design surmounting it. The absence of intrinsic architectural merit in this case, and, moreover, the general character of modern fountain structures being so vastly different from the ancient, especially those of Oriental countries, we hardly suspect that this example will find many votaries, or its publicity serve a further end than as a simple record. A single diminutive bowl, breast high, and sustained by a tapering corbel, on pedestal under central panel, conveys the only explanation of its utilitarian purpose; a simplicity which certainly does not correspond well with the elaborateness of the surrounding structure. If the fountain accommodation be chiefly confined to the interior, it needs explanation by *plan* or *section*.

"Groined roofs," of various construction, though rather commonplace, are effectively illustrated in perspective portions of St. Mary's, Redcliff, and the Cathedral, Bristol, Chapel in the Hospital of St. John, Angers, &c.; and for "half timber houses," selections are made at Bacharach and Angers. Might not *some* of those quaint, though less ornamental structures of this class, in one or more of England's *own* ancient cities—Chester, for instance—have been appropriately allotted a place, even supplementally, in a national English work?

The "Lych Gates" at Beckingham and Heaton, we believe the best examples extant (from sketches by Messrs. R. J. Johnson and George Truefitt respectively), follow next in order; and four plates—two in outline, and two in gold and colours—are devoted to "Marble Pavements," from the floor of St. Marc, Venice.

Considering the perfection of manufacture, and the infinite variety of design attained at the present day in "metal work," this department can scarcely be regarded as adequately illustrated; and in the latter respect especially, would suffer by comparison with the ordinary trade catalogues of Hart, Hardman, Skidmore, Johnston, Brawn, and others. For their extent, however, the selections are *morceaux*, Nos. 1, 5, and 6, on first page, and 2, 7, and 17, on second page, being remarkably noteworthy.

The two concluding plates comprise views of the Mosques El Habakee and Sultan Hassan's, Grand Cairo; and porches of Lisieux and Bayeux Cathedrals, which, either as regards proportion or detail, are not amongst the most meritorious available. Altogether, we are not quite sure—and we convey the expression with regret—that the illustrations of this work are commensurate with its comprehensive excellence in the letter-press department; but we hope, on a future occasion, to be afforded the opportunity of expressing favourable sentiments less restrictively.

"UNION IS STRENGTH."

SPEAKING to a sentiment at a farewell banquet given recently in Belfast to Dr. Heeny, Mr. A. J. M'Kenna, the talented editor of the *Ulster Observer*, delivered himself in the following eloquent terms:—

"There was an old King of Egypt who dug an immenso reservoir, into which the surplus waters of the Nile were collected, and when the overflow of the river subsided, and a drought fell upon the country, he was enabled to supply the deficiency and to pour out upon the barren land the wealth of invigorating waters. Physically or morally I do not believe I have much spare ground for anything like reserved space; and even though some felicitous inspiration *may* have fallen upon me, I cannot find a remnant of it at the present moment. The sentiment I have been called upon to speak to is one involving a principle that may be regarded as universal in its application. Like a streak of light from some

bright star that it is not granted us to behold, we can trace it by its luminous track to the undoubted source from which it sprung, and philosophy and experience testify alike to the truthfulness of its origin and the success of its operation. It embodies the idea upon which all national greatness ever has been built, whether we trace it to the time when society blended together the social atoms of which the human family was originally composed; or, follow it down to the grand developments in which mightier powers became amalgamated together, and mind and matter seemed to coalesce for the birth of an enduring civilization. Far back as history brings us, the union of national elements constituted the reality of national power. When the clouds of darkness fell upon the Jewish land, and the Israelites were led into captivity, it was disunion among themselves that subjected them to the Egyptians, and made them sit down and weep in sorrow by the waters of Babylon. When Persia became great and powerful and attained a glory that rivalled even the brilliancy of its own lovely sky, it arose to that magnitude only by the amalgamation of races, by the destruction of differences, by the removal of every element of division which might produce weakness where strength should prevail. And when glories, that after history has failed to rival, shed their light upon the land of Egypt, and for a thousand years kings there succeeded kings who ruled the world and commanded all the wealth which nature had enshrined in her bosom, we find it was the combination of once scattered strength that created that power, and we find it was the dissolution of that union that produced the weakness which enabled the Roman to crush that mighty kingdom to the dust. This principle of union is eternal. It has its origin in nature itself, and she exemplifies it in every little atom of matter—in the smallest strata as well as in the vaster amalgamation of physical resources—in the earth as in the heavens, where the stars testify to the beautiful accordance of systems, and proclaim the necessity of harmony and combination. Surely the sentiment involved in it should be nurtured in this old land of ours—destined by a wise Providence, no doubt, but by a strange ordinance, it would seem, to be the recipient of heterogeneous elements, but heterogeneous elements that have nothing so essentially discordant in them, but that they may be amalgamated together, and be made to produce a great national power, lofty in its proportions, glorious in its duration, and magnificent in its stability."

UNDERSELLING ARCHITECTS.

It is said that "competition is the spirit of trade," and the principle is always generously accepted by architectural practitioners when legitimately observed; like everything else, however, it is liable to its abuses, rarely within the professional pale, but most frequently without it. Our observations in this regard are specially directed, owing to a course of proceeding prevalent in this city amongst a class of *outsiders*, who pawn themselves on the public as properly qualified professionals, and thereby usurp the rights and the remuneration of those who are so, by undertaking the rendering of services at one-half—nay, much less—the usual fees. On any sensible person we need not impress the fallacy of supposition as to the *value* of these services, and others who are not open to conviction by reason, find out their mistake practically when too late. A party of peddling spirit, and wholly ignorant as to architectural merit, is about investing some money in building, he purposes having an "architect" for the sake of "a trifle," and calls on a gentleman of acknowledged ability and position, with whom failing to barter, according to the figure of his own economical notions, he forthwith proceeds to another of "the Jack of all trades" class who, by persuasive argument, accompanied probably by a libation indispensable to the sealing of such presents, by such a class—pooh pooh's, Mr. —'s merits and denounces his terms as extravagant, at same time offering to do the work just as well for a great deal less. The result generally speaks for itself.

Now, if these parties—and their existence is notorious—would confine themselves to one branch, and not meddle in that to practise which they have no pretensions, they might, by maintaining friendship at respectful distance with the profession, find themselves rather benefitted than the reverse thereby in the long run.

Our next notice will be more direct, when a like opportunity is afforded.

R. W. C. Reeves, Esq., J.P., has erected a magnificent tomb at Burrane Church, situate on a hillock, visible from the Shannon, and only two miles from the romantic village of Knock, over the remains of the once admired Eily O'Connor (the Colleen Bawn). At the foot of the tomb rises a cross about six feet in height by three in breadth, on which is inscribed the words "Eily O'Connor, or Colleen Bawn, Anno Domini, 1825." Crowds of people visit the place to behold the vault that encloses the remains of the being with whose history every one is acquainted as the heroine of Gerald Griffin's beautiful tale.—*Clare Freeman*.

* Architectural Publication Society, 9, Conduit-street, London; Arthur Gates, Hon. Sec.

MONUMENTS AND STATUES.

THE O'CONNELL, AT ENNIS.—Thanks to the energetic and impressive appeals repeated day after day by our excellent contemporary, the *Freeman*, the hitherto unfinished memorial to O'Connell, in Ennis, is now all but *un fait accompli*. The required hundred pounds are lodged in the National Bank, the statue is nearly ready to be fixed in its place, and the sculptor will be paid for his work, such a prospect being very questionable but a few weeks since. Presently we shall have an opportunity of recording the inaugural proceedings and further particulars.

THE O'CONNELL, AT GLASNEVIN.—In earlier numbers of this Journal, when noticing the history and features of "the Cemeteries of Dublin," we described the design of the O'Connell monument in the beautiful cemetery at Glasnevin, as originally intended by the renowned antiquarian, Dr. Petrie, and at the time only partially carried out. To the shame of the Irish people—for O'Connell, apart from religious or political considerations, was an ornament to Ireland, on whose like "we ne'er shall look again"—the monument has remained to this day in its unfinished state, *sans* mortuary church, *sans* ancient Irish cross, accessory features indispensable to the consummation of the whole. Now, that the object referred to above has been accomplished, it is proposed to institute a new subscription fund to defray the expense, which would be comparatively insignificant, of erecting the church and cross, and we hope that, for the cause of nationality and of art, the laudable purpose may prove eminently successful.

THE O'CONNELL, AT DUBLIN (NATIONAL).—The two preceding projects, partaking chiefly of local character, and being, by their position and architectural importance, deemed generally insufficient to constitute a national memorial to such a national celebrity as O'Connell, it is proposed to appropriate the site now occupied by the lamp and surrounding pillars at the head of Sackville-street, and close to Carlisle-bridge, to the erection of a suitable structure on which the statue at present in the City Hall (formerly the Royal Exchange) shall form a part. The *Freeman*, in urging this also, says:—"We give utterance to-day to the popular 'beseech' claiming that site from the authorities, and, judging from the letters and other communications we have received on the subject, we confidently hope that, before this day twelve months, some Irish architect will be laying the foundation of the intended memorial and the basis of his own fame."

THE EDMUND BURKE.—We notice with regret how this project drags its slow length lazily along, not quite *two hundred pounds* having yet been subscribed to the erection of a memorial to the man that made Ireland's own House of Commons tremble with the thunder of his eloquence. Many who would otherwise come forward liberally decline to do so till the **GOLDSMITH MEMORIAL** is completed, and this latter is also another instance of the tardiness of the Irish to perpetuate the memories of their great men. To the "Burke, De Burgh, and Bourke" special contribution fund the following have subscribed:—

Lieut.-General Burke, £5; Lord Downes (De Burgh), £1; J. Lardner Burke, LL.D., Beehive House, £1 1s.; Martin Burke, Esq., Shelbourne Hotel, £2 2s.; Charles Granby Burke, Esq., Court of Common Pleas, £2; Francis Burke, Esq., M.D., Westport, 10s.; Thomas H. Burke, Esq., M.D., 10s.; J. W. Burke, Esq., Malta, 10s.; Lieut. Burke, 68th Regt., India, 10s.; Lieut.-Colonel Burke, U. S., 10s.; Valentine Burke, Esq., Chatsfort, Merrion, 10s.; F. N. Burke, M.D., America, 10s.; Denis Burke, Esq., Lucan, £1; James Milo Burke, Esq., J.P., Dalkey, £1; R. Burke, Esq., Tipperary, 5s.; Mr. J. Burke, Exchequer-street, 2s. 6d.

In addition to the above, the following sums have been recently received:—The Most Rev. Dr. Duggan, Bishop of Chichago, £1; Hamilton Morrow, Esq., £1; Thomas Reynolds, Esq., City Marshal, £1; James Burgess, Esq., £1; James Martin, Esq., North Wall, £1; Richard and P. Shingleton, Esqrs., Ballitore, £2; J. J. Lyons, Esq. (DUBLIN BUILDER), £1; J. C. Singleton, Esq., D'Olier-street, 10s.

Too much praise cannot be bestowed on the zeal and energy with which Mr. J. J. Gaskin is pursuing this undertaking, and we trust that he will succeed in maturing it, and triumph over public apathy.

Notes of New Works.

ARMAGH.—There are no works of any consequence in Armagh this season, except a small Probate Office, which is nearly finished; and the improvements at the Asylum, which are being rapidly proceeded with by Mr. Cherry, the contractor; and consist mainly of new day-rooms, dining-hall, kitchen, wash-house, laundry, stable offices, sewerage works, &c. They were designed and are being carried out under the superintendence of Mr. J. Boyd, architect, Belfast, at a cost of about £6,000.

The auditors of "Vaughan's Charity" are about erecting a house and offices in the town of Kesh, Co. Fermanagh.

OMAGH.—In addition to the railway station, noticed in last number as being executed, Mr. Francis M'Gaughey, builder, is carrying out the improvements at the gaol, at a cost of nearly £1,400. Messrs. Riddel and Co., of Belfast, have the contract for the heating by hot water pipes. Messrs. Boyd and Batt, of Londonderry and Belfast, are the architects.

The same architects have also designed and are superintending the erection of a villa in the Gothic style, for Captain Buchanan, on an elevated position, near the Asylum, and which can be well seen from Dungannon Railway. The materials employed are black stone for the general walling, and freestone for the dressings of doors and windows; and amongst the characteristic features are high-pitched roofs, with verge-boards and hip-knobs, ornamental chimneys, &c. This work (our informant adds) is being carried out in a substantial and superior manner by Mr. Mullin, of Omagh.

Messrs. Royd and Batt are also architects for an extensive addition to the mansion-house of Seskanore, a few miles outside this town, for Captain M'Clintock. The contract is being executed by Mr. M'Clelland, of Derry, in his usual excellent manner.

Alterations and additions are proposed to be made to the National Bank-house, Kilkenny, according to plans by the company's architect, Mr. Caldbeck.

Sundry works are to be executed at the churches of Termonfeekin, Co. Louth, and Kilmore, Co. Monaghan, under the direction of the architects to Ecclesiastical Commissioners.

A new church is to be built at Tullow; same architects.

The prospectus of the Dublin and Balinglass Junction Railway, via Dunlavin and Sallins, has been issued. It will be a branch line from the Great Southern and Western, 23 statute miles in length, and commencing at the latter place. The estimate is about £5,000 per mile. Mr. James Dillon, C.E., engineer-in-chief.

A new club-house and hotel, and four lodges are to be erected on the Ballynahinch fishery grounds in Connemara, for which Mr. S. U. Roberts, co. surveyor, Galway, furnished the drawings.

Varied Items.

The Strand Hotel Company is projected to supply the great want of a well-managed middle-class hotel, in London. The directors have lately purchased Sam's hotel, nearly opposite Somerset house, which will be added to the large plot of ground immediately in its rear, formerly known as Lyon's Inn, comprising half an acre of land. The new hotel (in this very central position of London) will contain 800 bedrooms, and during the erection of the Lyon's Inn portion of the building "Sam's Hotel" will be carried on for the benefit of the company. The services of the proprietor of "Sam's Hotel" have been retained, and upon the basis of the returns of that hotel a dividend of upwards of 20 per cent. may be expected for this company. Mr. Francis H. Fowler is the architect.

The public park at New York, which it was determined to create only a few years ago, may now be said to be complete. The expenses of levelling, draining, planting, &c., have been enormous. There are about eight miles of carriage roads in the park, and the architectural features are not without interest. The bridges for the carriage and bridle roads are of a very ornamental character; and there are many picturesque bridges of rustic wood-work conducting footways over ravines and small streams. An archway beneath one of the carriage-ways is said to be of exceedingly artistic design.

Sir Robert Peel has presented the tenantry on his estates at Fazeley with a handsome new school-house. The building, which is in the Gothic style, was commenced early in the present year, on a plot of ground contiguous to the church, and standing near to the parsonage and the village reading-room. It has been built at a cost of about £1,400, which has been entirely defrayed by Sir Robert Peel, with the exception of the usual grant from the Committee of Council. The schools are to accommodate 110 boys and girls, and 180 infants. If, in addition to these, the Sunday-school children are counted, the total number provided for will be 400. Mr. Chamberlain of Birmingham, architect, Mr. Clarkson of Tamworth, the builder.

It is announced that the Catholic Church of the Immaculate Conception of our Blessed Lady of Mount Carmel, now erecting at Moate, Co. Westmeath, will be dedicated by Bishop Cantwell on the 14th December next.

Seven millions and a-half of sovereigns, and over a million of half-sovereigns, were coined last year. The total value of all the pieces coined since 1852 to the beginning of the present year is about £26,000,000.

The man who follows frivolous pleasures, and hunts after sensual enjoyments, is like a person chasing butterflies upon the edge of a precipice.

How happily the efforts of the National Life-boat Institution, the Board of Trade, and kindred bodies on the coast have been blessed during the past six years. During that period alone 16,119 persons have been saved from shipwrecks by means of the life-boats, the life-preserving apparatus, shore boats, and other appliances, as the annexed list shows:—Lives saved 1856, 2,243; 1857, 1,668; 1858, 1,555; 1859, 2,832; 1860, 8,697; 1861, 4,624. Total lives saved, 16,119. We have a list before us of the names of upwards of one hundred wrecks, from which, within the space of two years and a-half, 726 lives were saved by the lifeboats of the society. It is on this list—this trophy of success—that the committee of this institution found their latest appeal. During the period named its establishments on the coasts of the United Kingdom have cost £26,400. They have voted £2,455 as rewards to the crews of their lifeboats, and £567 19s. to those who, by shoreboats and other means, saved 549 shipwrecked persons, in addition to the above 726; making a total of 1,276 persons saved from a watery grave during the last two years and a-half. Since its formation the institution has been instrumental, by its lifeboats and other means, in saving 12,670 lives; and having now 122 lifeboats under its management, it requires a large annual income to meet the demands upon its priceless services.—*Lifeboat Journal*.

The forty-second annual exhibition of pictures at the Royal Manchester Institution, Mosley-street, is now open.

The tombstone that covered, at Longwood, the grave of Napoleon I., together with the rusty iron railing that enclosed it, were left at Cherbourg in 1840, when Prince de Joinville landed the coffin out of the "Belle Poule." These memorials are now to be also forwarded for exhibition at Paris, and are to figure in that wing of the Louvre where the saddle, camp bed, writing desk, &c., of the first Buonaparte may be seen.

The temporary Church of St. Kevin, Heytesbury-street, will be solemnly consecrated on the 12th inst. by Archbishop Cullen. A permanent church is contemplated.

The directors of the Midland Great Western railway require a resident and a locomotive engineer respectively.

Accounts from St. Petersburg state that at the end of last month there were in Russia 83,104 verstes of electric telegraph (24,000 miles). The number of stations was 150. An additional length of 10,385 verstes is in course of being established.

The *London Review* says that a scientific balloon ascent for meteorological investigations is shortly to be made in Prussia, under the direction of the Berlin Academy, on the plan of the successful ascents of Mr. Glashier, which have excited very great interest amongst learned societies abroad. A new balloon for military purposes, which can be made to ascend or descend by a peculiar apparatus attached to the car, is stated to have been made by the French aeronaut, M. Godard.

Mr. Harris, Lessee of the Theatre Royal, announces an engagement for a short series of Italian Operas, commencing Tuesday, the 7th inst., with the following distinguished Artists of Her Majesty's Theatre:—Mesdames. Titiena, Louise Michal, Fiori, Mdma. Lemaire, Mlle. Paulina Castri; Sig. Badiali, Herr Formea, Signors Casaboni, Soldi, Bossi, and Giuglini. Conductor—Sig. Arditii. Leader—Mr. Levey. The Repertoire will include "Il Trovatore," "Lucia Di Lammermoor," "I Paritani," and "Marta."

An inspection of the works on the intended Longford and Sligo line has taken place by four of the Directors of the M. G. W. Railway, accompanied by some of their officers and engineers, and by Mr. Smith, of the firm of Smith and Knight, the contractors. The bridge over the Shannon at Drumena, which is 380 feet in length, and comprises six arches—two of 75, and four of 30 feet span, partly "swivel" and partly "rolling"—was an object for special examination. It is expected that the line will be open for traffic during the present month.

The new Cathedral Church of St. Patrick, at Cavan, is to be dedicated on the 19th inst.

The Roman Catholic Church of St. Bridget, Killyshandra, has (according to correspondent of *Freeman*) made very considerable progress. It is designed after the French style of Gothic architecture, and consists of nave and aisles, north and south transepts, chancel, with side chapels, sacristy at the south-east, and tower with spire at the north-east side of chancel. The principal doorway, with shafts and moulded arch, is on the west end; there are also entrances through north and south porches. The aisles are divided from the nave by three bays of arches resting on cylindrical marble columns, with carved Dangannon stone caps and moulded bases; and the transepts and chapels open into the nave and chancel with moulded niches springing from corbel shafts in stone piers. The clear internal length from east to west is 93 feet 6 inches, width across nave and aisles 49 feet 6 inches, and across transepts 69 feet 6 inches. The height from ground line to ridge of the nave roof is 47 feet, and height of tower, including spire when completed, 120 feet. The aisle windows are in coupled lights, with varied tracery in the heads and gables over each, continued to clerestory wall, which rises 7 feet above same, pierced

with spherical traceried windows to light the nave. The west end window, of three lights, each with moulded jambs and arches, are intended to be filled with mullions and tracery, as also the great east window of the chancel, which is to contain seven lights, having elaborate and rich tracery in the heads. The material used is limestone for the dressings, which contrasts well with the local stone used for general walling. The plan and drawings have been prepared by Mr. William Hague, Great Brunswick-street, Dublin.

The *Munster News* refers to the discovery, at Quin Abbey, Clare, of a handsomely wrought silver gilt cross, supposed to have belonged to a former mitred abbot of the Franciscan order, to whom the abbey belonged.

The International Exhibition will be formally closed on the 1st of November, but will remain open after that day for a limited time, at increased scale of admission, that the exhibitors may dispose of their goods.

Miscellaneous.

ST. ANDREW'S CHURCH.—The secretary states "that the entire estimated cost of this church is £12,735. There is still required for its completion £6,500. Towards this deficiency there has been promised £2,500, provided the entire amount be subscribed within a limited period.

IRISH MINE SHARE MARKET.—The Carysfort Mining Company is supposed to have elected a good miner from Cornwall for their future resident captain, which will much assist in re-establishing public confidence. From this lead mine, Ballintemple—which has always been the favourite of experienced mining engineers, whose opinions have hitherto been but too little consulted by the directors, an important improvement is reported. It appears that the lode has increased in the 80 fm. level to 18 in., with lead 11 in. wide in the north-west end, where the lead 20 fm. level was only 4 in. wide. There is also an increase in the rib of lead in the south-east end, measuring now 4 in., while at the corresponding point in the 20 fm. level it was only 1 in. This corroborates our opinion that the company possesses a good property, and other elements necessary to give satisfaction to the shareholders if they adopt a proper system of managing their general affairs and the mine, after the excellent example set to them by the Wicklow Copper and the Mining Company of Ireland, the directors of which meddle as little as possible, if at all with the details of the company's office, or of the management of the mines, leaving the same in the hands of efficient officers, who are carefully chosen and liberally remunerated. Their shares, in consequence of the favourable report from the lead mine, are in improved demand, and are freely bought.—*Mining Journal*.

STATISTICS OF LONGEVITY.—It sounds strange to hear that the most healthy class of men are the scavengers, but such is the fact. Of the upper classes, the clergyman lives the longest, the physician next, and the lawyer next. The gentry may be reckoned as long-lived as the clergy; but the higher aristocracy are below the learned professions; and the members of the royal houses, again, average three years less existence than even the aristocracy. Hodge, under his hedge, has a chance of thirteen years' longer life than a Bourbon or a Guelph, on the authority of those learned in vital statistics; so that we have contrasts to ponder in modern times which our ancestors never dreamed of.—*Curiosities of Civilization*.

THE ANCIENT CONCERT HALL.—This well-known edifice, in which so many pleasant concerts have taken place, is about being sold by the Ancient Concerts' Society, and a joint stock company, with limited liability, is already in process of formation, for the purpose of purchasing and refitting it in a style of increased elegance, comfort, and convenience. It is proposed to save the building for those musical purposes to which it has hitherto been devoted, and those who join in the intended company are likely, from the amounts hitherto produced by the annual lettings of the various portions of the building, to receive a fair return, at all events, for their capital. A large sum has been already subscribed in shares.—*Saunders*.

TIMBER TRADE.—On Thursday last, at Messrs. John Martin and Son's sale, we noticed a decided improvement in tone. Sales were freely made, principally on account of country consumers, the attendance being very large and respectable. The following amongst other goods were placed—110 great hundred spruce deals, at £13 5s. to £18 12s. 6d.; 20 great hundred pine deals, from £19 10s. to £31 10s. The lot of timber sold consisted of 110 pieces yellow pine; 85 tons red pine, 72 tons best memel; 75 tons white memel; 10 tons St. John's birch; the sale being closed with seven fathoms Memel lathwood.

SOUTH DUBLIN PENNY BANK, WEAVERS' HALL, COOMBE.—Statement of accounts for the week ending 22nd of September, 1862—Number of depositors, 189; amount lodged, £11 11s. 9d.; number of new accounts opened, 19; number of withdrawals, 20; amount withdrawn, £21 5s. 1d.; total number of depositors since the 1st of January, 1077; total amount lodged since 1st of January, £527 1s. 9d.; balance in bank to credit of depositors, £308 17s. 6d.

PARIS PERMANENT UNIVERSAL EXHIBITION, TO BE OPENED IN 1863.—Sojourners in Paris at this season who visit St. Cloud, Versailles, or Sevres, will notice on their way thither a vast accumulation of building materials lying on a picturesque spot at Auteuil close to the road and railway, and just within the ramparts. Closer inspection will discern the outline and foundations of a spacious edifice which is rapidly rising under the auspices of the Emperor, although (as is very unusual in France) without a state guarantee, the enterprise being, like the Crystal Palace at Sydenham, undertaken by a company. The estimated cost of the building is £600,000, the whole of which has been subscribed in France; and the object of the scheme is to found in Paris a spacious place of resort for producers, dealers, and customers from all parts of the world, where commodities may be compared and purchased under one roof—an arrangement which will afford great facilities to all parties. The shareholders will be reimbursed by the rentals charged to exhibitors, and the public will be admitted free on at least five days in the week, it being thought that an entrance fee deters many from entering a place who would probably spend more or less money without such a barrier. The case of the International Bazaar at South Kensington, although good music is made a special attraction, illustrates the fallacy of interposing even a small entrance-fee between sellers and buyers. The palace (at Auteuil) is situated on an irregular-shaped plot of ground bounded on one side by the new railway, on another by the road to St. Cloud, and flanked by the ramparts. The plan of the edifice has been adapted to meet the peculiarities of the site, and the uncovered ground will be laid out in parterres. The main building will consist of an open nave running north and south, presenting a clear and uninterrupted vista of 1,050 feet long, 130 feet wide, and 110 feet to the crown of the semicircular roof, which springs at a height of 35 feet from the floor-line. This nave will be intersected by a transept of equal width and height, 550 feet in length, above which a lofty dome of elegant contour will rise to a total height of 315 feet. On each side of the nave there will be aisles 100 feet in width, and again, on the west side, two supplementary aisles of equal width, but of varied length, planned in accordance with the site. Over all these aisles, at a height of 25 feet from the ground, galleries will be constructed. At the south end, quite detached, and yet connected with the main building by corridors, will be a polygonal saloon, no less than 222 feet in diameter, which will be the largest covered assembly-room in the world of that form. The central height of this saloon will be 115 feet, and, with its gallery all round, it is calculated to hold 10,000 persons. A machinery annexe, 600 feet long and 100 feet wide, will occupy the north-east corner of the ground; and near the music saloon will be erected a winter garden, or rather two buildings of iron and glass, to be used as winter gardens—one being semicircular, 80 feet in diameter; the other a parallelogram, 160 feet long and 26 feet broad. The architect is M. Liandier, and the iron castings are being made in Glasgow.—*Illustrated London News*.

FIRE.—Some hay in a dairy-yard belonging to Mr. John Downes, Island-street, took fire on Monday morning week, and, but for the prompt exertion of Captain Ingram, the newly appointed superintendent of the Corporation Fire Brigade, the damages would have been serious, the rick being insured for £400. Several engines arrived on the spot in due course; and Dr. Gray, Aldermen Campbell and Reynolds were in attendance.—A fire also broke out in Howth, on Sunday, at one time threatening alarming consequences, and resulting in the destruction of the houses of a poor fisherman named Daly, (including £60 saved up in a bed-ticking, the savings of his life), of the widows Campbell and Cashel, and of Edward Roobe.—A few minutes before one o'clock this morning constable 111 B, observed smoke issuing from a bedroom window of a house, No 8, Mark-street, occupied by Laurence Byrne and his family. When the door was opened the constable ran to the room, which was occupied by an old woman and a child, who were fast asleep. He had to break open the door, as the old woman, who was nearly suffocated, could not unlock it. The bed and furniture were all in flames, but water having been obtained, the police and a number of people from the neighbourhood succeeded in extinguishing the fire.

GREAT IRON RAILWAY BRIDGE FOR INDIA.—Just now, while all our hopes for an extension of the future supply of cotton are fixed on India, as being the most likely source whence such supply may be derived, everything that may tend to develop its internal resources by means of one of India's greatest wants—good roadways—will be viewed with special interest. Messrs. Ormerod, Grierson, and Co., of the St. George's Ironworks, Hulme, have just completed the third span of a huge wrought-iron lattice girder bridge for a railroad and carriageway combined, which is intended to cross the river Jumna, near Delhi. The bridge is for the East India Railway Company, and is from the designs of Mr. A. M. Rendel, C.E. If our readers will imagine an iron tube, with solid top and bottom, with open lattice-work sides, through which air and light can freely pass; that this tube is over half a mile long, 18ft. high by 18ft. wide, with a clear space of 16ft. from the level of the highway for carriages and pedestrians to the under side of the railroad above, they will be able to realise the extent of this colossal

structure. Its entire weight will be about 3,400 tons, and when delivered at Liverpool for shipment to India, it will have cost more than £50,000. The bridge will be composed of 12 girders, each 216ft. long, supported at each end by stone piers, 205ft. distant from each other. Each span has a rise of 5in. in the centre. The top and bottom parts of the girders resemble a continuous trough, the upper pair being inverted. The bottom of this trough has one plate $\frac{1}{2}$ in. thickness, the strength gradually increasing to three plates of the same size at the centre. The sides of the trough are composed of two $\frac{1}{2}$ in. plates, riveted together; and instead of being joined to the bottom plates in the usual way with angle iron, they are flanged or bent to a curve of 4in. radius, thus forming their own attachment. This method of construction considerably improves the appearance of the work without detracting from its strength. In a structure of such magnitude, and which will be exposed to the intense heat of an Indian sun, it is of the greatest importance that provision be made for variation of expansion and contraction. This provision has been secured by a simple arrangement which allows the end of each girder to slide on rollers with perfect certainty and ease; while by the same apparatus the varying deflections are also provided for. During the progress of construction every portion of the work is carefully noted by an official inspector, who rigidly rejects any plate or other portion of work in which the least flaw can be detected, thus insuring, so far as the engineers are concerned, first-class materials and excellent workmanship. All the parts of the structure are so fitted by planing and other self-acting tools, that great ease of construction has been secured when the work is being put together, giving also the advantage of little trouble in joining the parts on their arrival in India. The drilling machines for boring the plates are fine specimens of that class of tools. One of them will drill at one time 160 holes one inch diameter in a plate 13ft. long, 4ft. broad, by $\frac{1}{2}$ in. thick. The pressure on the drills by the movement upwards of the table supporting the plate is regulated by two small valves which act upon two hydraulic rams. Judging from the stability, yet light appearance, of this specimen of the constructive skill of Manchester in the department of engineering, we augur well for the great work of which it will form an important part; and we trust that while it will add to the well-known repute of the constructors, it will also hasten forward the time when we may depend upon a large and sufficient supply of good Indian cotton.

TIMBER.—In a commercial article of *Freeman* it is stated that a large quantity of red deals was offered by public sale on Thursday week last, by Messrs. William Kelly and Co. The attendance of the trade was numerous, and the biddings were very actively maintained. A considerable portion of goods of that class was sold at firm prices. The sales of St. John and Miramichi spruce deals were also at improved rates. The demand for baulk timber being limited, only a few lots were brought forward. We subjoin a note of the sales:—

5,926 pieces Archangel red deals and plank, at £22 17s. 6d. to £26 10s. per 120 pieces of 12 feet 9 x 3.
1,938 pieces Sundswell red deals, £18 15s. to £20 2s. 6d. per ditto.
750 pieces Christiania red deals, at £23 17s. 6d. to £25 8s. per ditto.
6,949 pieces Miramichi spruce deals, plank and battens, at £13 15s. to £15 per 120 pieces of 12 feet 9 x 3.
5,083 pieces St. John spruce deals, £14 to £15 per 120 of 12 feet 9 x 3, and a few lots of few short lengths at £13 10s.
1,440 pieces Quebec pine plank, at £29 10s. to £31 per 120 of 12 9 x 3.
107 pieces Quebec pine battens, at £26 5s. per 120 of 12 9 x 3.
720 pieces first quality Quebec spruce deals, at £18 2s. 6d. per ditto.
600 pieces third quality ditto, at £13 2s. 6d. per ditto.
3 lots pine timber, 65s. to 67s. 6d. per ton.
3 lots Memel timber, 65s. to 75s. per ton.
3 lots Sundswell timber, 60s. per ton.
1 lot undersized Danzig timber, 50s. 6d. per ton.

KINGSTOWN COMMISSIONERS.—The usual finance meeting was held on Friday. Present—Messrs. J. Barrett, J.P., (Chairman), Hasler, Masterson, Buckley, Murray, Crosthwaite, Sullivan, Hayes, and Nugent. The surveyor read his report, and Mr. Masterson submitted a plan to be adopted in the laying of crossings in future.

THE CROMPTON.—On the 24th ult. the inhabitants of Bolton (England) inaugurated, with great *éclat*, the statue of Samuel Crompton, the inventor of the spinning mule, who was born in that town on the 8th of December, 1753, and died on the 26th June, 1827. The mayor accepted the presentation in appropriate terms.

NOTICES.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MABBOT-STREET." All other Communications should be addressed to the Editor, 26, LOWER GARDINER-STREET.

TO AUTHORS AND PUBLISHERS.—Books, pamphlets, &c., intended for review in the DUBLIN BUILDER should be forwarded direct to the Editor's residence, 26, Lower Gardiner-street, and carriage paid, as none others will be received.

The Dublin Builder.

VOL. IV.—No. 68.

INTERNATIONAL EXHIBITIONS—THEIR EFFECTS ON ART AND ART MANUFACTURES.

IN visiting the Great International Exhibition of '62, one is struck with the rapid strides which Great Britain has made in the Fine Arts, and what are called Art Manufactures, since 1851, although the present building (which was doubtless intended as an Art manufactory on a large scale) is almost in every respect vastly inferior to its graceful and navel predecessor. It was a great blunder to intrust so grand and large a work to a military engineer, because, forsooth, he was said to have invented a cheap construction of roof. And it was also a blunder to decorate in showy colors and elaborate designs a so decidedly ungraceful structure. The novelty and elegance of the Crystal Palace, and the judicious arrangements of tints employed for its ornamentation, charmed every one. In the matter of the building, then, it is clear that we have not advanced, either in our knowledge of forms, or the application of colour necessary for beautifying those forms. Perhaps, however, we are wrong in saying this, for had the men who designed and executed the former building been employed to erect the latter, we should doubtless have seen something worthy of the country, and marking the increased knowledge usually gained by experience.

The Exhibition of 1862 has been from first to last a job. Passing, however, from the building to its contents, we see what benefit has arisen to our country from our more intimate association with our continental neighbours; and how greatly exhibitions of this kind mutually improve the taste and knowledge of ourselves and of others. It is only necessary to inspect the various Art manufactures of Great Britain, to be convinced of this fact. In 1851 we were much inferior to the French and Germans in the design and decoration of porcelain; we are now nearly equal to them in many respects, and in some we surpass them. The majolica work in Minton's Court has not its equal; the beautiful porcelain exhibited by Copeland is, of its kind, unsurpassed. The large majolica fountain (one of the meeting places for friends in the Exhibition) is a work highly creditable to its manufacturers, though in design it is inferior, and leads one to the conclusion that it is a mistake to employ coloured or highly-decorated work, which, from its use, in time becomes covered with deposits and dirt, from water. On the whole, however, it is plain, even to the uneducated eye, that Sevres has met a rival in Staffordshire, with which it will have to contend very energetically for pre-eminence.

Visitors from the country are often told to meet their London friends at the Norwich Gates. These have deservedly been ranked among the lions of the Exhibition. Whether we regard them as a specimen of metal-work, or as a sample of design in Art manufacture, we must yield them great praise; there is much feeling in the treatment of the foliage, which shows the high appreciation of form which the various workmen employed on them must have possessed. This branch of Art manufacture, then, has almost sprung into existence in our country since 1851, in the exhibition of which year few samples of the kind were exhibited, and those by no means equal to the Norwich Gates, or the still more magnificent screen for Hereford Cathedral. This splendid work is formed of beaten brass and bronze, inlaid with mosaics. It was designed by Mr. G. G. Scott, R.A., and executed by Skidmore of Coventry. Skidmore's name was unknown to fame in 1851. This work proves that we are not a whit behind the mediæval workers in metal, either in design or execution. It consists of a series of arches, elaborately ornamented in the spandril with beautiful scroll-work and foliage; these are supported on light columns covered with a net-work of richly-ornamented beaten brass. Above the central arch or gateway is a figure of our Lord in bronze; on either side are angels, in the same material, as also in other portions of the upper part of the screen. Our object being, not so much

to describe the various works of Art in the Exhibition, as to mark out the national progress in Art manufacture, we shall not enter more minutely into the details of this beautiful work; it is enough to point it out as an object worthy of study and imitation to those who have entered on this branch of manufacture, and to give them encouragement, seeing how much has been acquired in so short a time, by the energies and talents of an enterprising man. In the metal department also, Messrs. Hart, of London, exhibit in their court a great variety of mediæval work in brass, iron, and the precious metals. Since 1851 this firm has deservedly risen to eminence, and now exhibits articles little, if at all, inferior, either in design or execution, to the best works of the middle ages. Here again do we see the triumphs which persevering genius can accomplish. Messrs. Hardman and Co., of Birmingham, have fitted out a mediæval court in this, as they did in the last exhibition; since that time the great Pugin (to whom we are mainly indebted for the revival of the true principles of Art, which have borne such abundant fruits in the works of Mr. Skidmore and Messrs. Hart) has died. We mark in the present exhibition by Messrs. Hardman and Co., as compared with that in 1851, the loss of this master spirit. The brass and silver work exhibited by them is, as it always has been, extremely good. Their designs are true, elegant, and graceful, and the workmanship perfect and highly finished, yet they seem to be rather resting on the laurels which they gained in '51, than to desire to extend their resources legitimately, in novelty of design, and in further application of the principles of ancient art. In the centre of their court they exhibit a statue of the Madonna and child enthroned; it seems a pity that amongst work of such acknowledged excellence they should have placed this statue, which does not mark the progress of high art, but simply shews that they have undertaken a new line, in which, probably, in our next International Exhibition they may exhibit works of the kind worthy of praise. There was little room for improvement in the works of the Colebrookdale Co., yet they have improved in their designs, their castings will bear comparison with the works of foreign founders; they exhibit, however, nothing grand and striking in the way of figures, such as are seen in the Continental departments. The samples of glass exhibited, show a marked improvement in this manufacture, particularly as regards coloured glass for ornamental and painted windows. Messrs. Hartley & Co., of Sunderland, have filled the two large circular windows at the ends of the exhibition building with samples of various coloured glasses. These windows are evidently not intended as anything more than to show the texture and quality of the material displayed, and herein do we mark the great improvement which this celebrated firm has made during the last ten years. To any one who knows the difficulty attending the mixture of materials, and the nicety required in the proportions of the metallic oxides used for colouring glass, will plainly appear the great diligence and attention which Messrs. Hartley & Co. must have paid to this branch of the art; we trust they will not allow their energies to flag, but will, by further improvements, maintain that pre-eminence which they have already acquired. Mr. Oastler exhibits some very good flint-glass, but the most beautiful samples of this material (whether we regard the perfection of its manufacture, the design of the forms into which it is worked, or the cutting with which it is ornamented) are shown by Messrs. Powell and Son of London. Too much praise cannot be given to this, perhaps the oldest flint-glass firm in England, for the energy with which they take up, and work out, everything connected with the manufacture of flint-glass and its various applications. To them we are indebted, since 1851, for the beautiful coloured flint-glass for stained glass window purposes, which equals in texture, and in colour, the most admired specimens of glass of the middle ages. They have lately succeeded in the difficult task of reproducing the gilded glass used in ancient mosaics, samples of which are exhibited by them. In ten years hence the secrets of none of the ancient Venetian glass makers will remain to be discovered. We do not notice any marked improvement in the ornamental stone carvings exhibited, over those in the Exhibition of 1851, except in the case of the doorway by Mr. Poole of Westminster, designed by Mr. Digby Wyatt; this is certainly a most beautiful work, and shows progress. Some inlaid work by Mr. Earp of London, is well done, but the carving of foliage, ornaments, and

figures, show no advance. This inlaid work is a new feature in architectural decoration, that is to say, it is a revival of an old one; we hope, that in time, it will be developed in greater perfection. The Mediæval court contains little or nothing worthy of notice in the way of carvings and decorations. If these two branches of art have improved since '51, there is nothing here to mark it. The intention of the foregoing brief remarks is to show in what way art, and art manufacturers, may be fostered and encouraged. Looking outside the exhibition, one must confess, that in a great measure we are indebted to these international exhibitions for the vast improvement which is observable in our architecture and architectural decorations, as well as in the form, colour, and ornamentation of those useful things which are necessary to us, and of these elegant superfluities which add to the comfort of refined life. It is with feelings of pride that we contemplate the advances which art has made in our own country; the new buildings in Trinity College, the Club-house in Kildare-street, both the works of Messrs. Deane and Woodward of this city, the Roman Catholic Chapel in Dominick-st., and other works in Ireland by Mr. J. J. McCarthy; the new shops in Nassau-street by Mr. McCurdy, the chapel in progress in Stephen's-green by Messrs. Lanyon and Lynn, together with other noble works of Irish architects, show, indisputably, the great advance that has been made in art workmanship for beautifying, and in design for the construction of public and private buildings. To the praiseworthy and self-denying efforts of Mr. Dargan were we indebted for our Irish National Exhibition. To Mr. Benjamin Lee Guinness, to Mr. Dargan, and other patriotic gentlemen, are we indebted, likewise, for the proposal of a Winter Garden and permanent Exhibition Building in Dublin. We trust that every effort will be made by the public to assist them in the completion of their laudable undertaking, and that, in this Exhibition, specimens of art for the instruction of artists and art workmen will be stored, and that it will be the means of causing our country, in any future exhibition in England or on the Continent, to equal, if not surpass, their neighbours.

THE WATER SUPPLY OF PARIS.*

For centuries the supply of water for Paris has occupied the attention of the French Government. Philip Augustus erected the first fountains; his successors and the municipality organized in the squares and open supplies of water drawn from the northern springs. Marie de Medicis, restoring a Roman aqueduct, led in the waters of Arcueil. In the reign of Louis XIV., pumps were placed by the bridges of Notre Dame and the Pont Neuf, to raise the water of the Seine. A century later similar works were set up at Chaillot. But they all turned their backs on drains, and sewers and their contents, leaving the sun, the rain, and the river to settle these matters.

Water which had served domestic purposes ran in streams down the streets in mid-channel, and either joined the Seine on the south, or on the north the ditch of Mémilmontant. This ditch, when its exhalations began to threaten the health of the neighbourhood, was paved and vaulted, and converted into the main sewer which encircled the town. The outscourings were allowed to run into pits in the open fields; and the night soil collected in the pits underneath the houses was taken away by night, to be thrown, first into the charnel-house of Montfaucon pell-mell with the bones of criminals, and afterwards into the empty plaster-pits of Buttes Chaumont. Such was the system which survived to our own times. We may add, that from the sixteenth century the gardeners who cultivated the marches of the Temple, applied to their land the sweepings and straw manure of the town; and when Paris, spreading daily, ejected them from within its bounds, by means of this same manure, they converted the plain of Vertus into a garden of inexhaustible fertility. Beidel, too, about 1780, formed the idea of solidifying, by drying, the thick liquid in the basins of Montfaucon, and manufacturing *poudrette*, by which the first company of adventurers was enabled to pay a rent of £22,000, and reap a handsome profit.

The sanitary reform of Paris dates from 1830. The completion of the Canal de l'Ourcq, which delivers 100,000 tons of water, at a level of 27 yards above the Seine, altered the whole state of the town. The principal was adopted that a group of houses constituted a block (*lot*), to be secured by a stream of running water, and provided with a water-post (*borne fontaine*) on a high level, and a sewer's mouth below. An end was thus put to the torrents of filth which had hitherto deluged the streets. These were re-laid in a convex form, skirted by foot pavements; and under all the main

thoroughfares waterpipes and drains were laid. The management of the night-soil underwent a like change. M. Mary was so adventurous as to propose to construct a syphon $7\frac{1}{2}$ miles in length, terminating in the reservoir of Bondy, for the purpose of emptying the pestilential pools of Montfaucon. This scheme was unprecedented, and apprehensions were entertained that the pipes would become choked by the pasty matter. After five years' opposition he gained his point, and the construction of the "dépotoir" was the result. This work consists of an assemblage of cisterns, into which the produce of each night's carting is emptied. The contents are then forced by a steam-pump through an iron pipe to a clearing of seventy-five acres made in the middle of the Forest of Bondy, well out of reach of Paris and its atmosphere. M. Mary calculated that this pipe, which traversed the market gardens of Noisy, might furnish liquid manure, to be sold at a cheap rate at convenient stations. But the practice of buying townswappings and stable manure was so established that, until 1850, night-soil was overlooked; nor was any attempt made to introduce its use in the environs, prior to the experiments which led to the establishment of the farm of Vanjoux.

About 1850 the introduction of railroads gave a new impulse to the improvements of Paris. Traffic of all sorts was increased tenfold, and, as a consequence, streets required to be widened, and the whole town, as it were, re-organized. Then it was that Government came forward and sketched the plan, which is realized in the magnificent city such as it now stands.

Two great lines now intersect one another at right angles, so as to form a cross—an idea of the time of Philip Augustus; the one, the Rue de Rivoli, runs parallel to the river; the other, the Boulevard de Sebastopol, comes sloping down from the hills on the north, and again rises to the south. On the latter line sanitary arrangements have been comprehensively planned and carried out. We find a complete subterranean town, provided with vaulted thoroughfares 35 yards wide, macadamised or paved, which contain sewers showing a section (*profil*) of 3, 4, or 6 yards, with polished sides and serviceable foot-pavements, in which, through an inner channel, the stream of sewage-water flows, fed at the corner of each street by lesser sewers, themselves drawing their supplies from the drains which abut on every house. This is such a scheme as the English *Board of Health* suggested, but with this difference, that instead of a system of small pipes, provision is here made on a large scale for all the requirements of town life, including water and gas. Besides the rain-water and that which has been used for domestic purposes, the drainings from the closets run down these channels, the solid portion of the deposit being retained in the pits by the filter. There is no connection with the outer world. The system is self-contained; water and gravitation are the sole agents employed.

The drains connected with the private houses are oval sewers, 4 feet 2 inches by 7 feet 6 inches, in which the workman passes easily to and fro with his barrow. The main drains, constructed under the great lines of traffic parallel with the river, are circular tunnels of 10 feet in diameter, containing a railway with a 3-foot 11-inch gauge, and a channel for the waters between the lines of rail. Lastly, the main sewer, which forms a chord to the windings of the Seine, between the Pont de la Concorde and the Pont d'Armières, is an elliptic tunnel, having a horizontal diameter of 20 feet, in which is contained a canal 11 feet 8 inches wide, traversed by a barge, with a footpath on either side 8 feet wide. All these works are executed in cement, so that the smooth and polished walls and their softened outlines reflect the light; transmit sound, and give free passage to the waters, which leave no taint behind. From the dwellings they received grease, the refuse from the kitchen, and the household water (*eaux ménagères*), as well as the disinfected liquids drawn from the pits of the closets. The paved streets transmitted their mud, and the macadamised boulevards their scrapings. Markets, slaughter-houses, barracks, paid their tribute of manure—vegetable refuse, blood, urine, or undiluted night-soil. This confused mass, mixed with water, issued from the sewer's mouth at Asnières in a thick and dark stream, flowing at the rate of 1 ton per second.

To provide against the accumulation of a great mass of filth near the sewer's mouth, the following ingenious device was adopted:—

The centre of the main drain is occupied by a canal $2\frac{1}{2}$ miles long, having a fall of 1 in 2,000. On this canal a barge is employed, from the fore part of which is suspended a metal flood-gate (*vanse*), which fits exactly to the sides of the tunnel up to a certain water-level, and lowered by leverage to within a few inches of the bottom. By these means the stream is headed up behind the floodgate, which as soon as there is a head of two feet of water, forces out through the small aperture left below a perfect torrent of refuse, sand, and even stones, which are mashed and rolled together, and thrust onwards in a long drift 100 yards in advance.

As the barge itself is propelled slowly forwards by the stream which it holds in check, the torrent keeps advancing, and the outscourings never find a resting-place till, at the end of ten days, the mouth of the sewer is reached. The boat then performs its backward journey by the aid of floodgates lowered from the roof. These, acting like locks on a canal, raise the water to an artificial level for

* From an article by P. H. Frère, and copied into the journal of the Royal Agricultural Society of England.

a distance of 11,000 yards at a time, by which means the barge is gradually floated back.

The lighting and signals had still to be provided for. At first small lamps such as are fixed to railway trains were tried, but their light was found to be too dazzling to those in front, whilst it left those in the rear in deep shade. A common oil-lamp in a glass globe, distributing its light equally around to a distance of ten yards, was ultimately preferred. Red, blue, and green railway lanterns answered perfectly for signals.

Thus far provision had been made for cleansing the town, but at the cost of the Seine, where a pestilential delta would be formed at the sewer's mouth. The great point was to extract all solid matter from the stream without interrupting its flow; this alone would lodge and accumulate; this would interfere with working pumps for irrigation; liquids would float away with the stream, and would undergo slow combustion when in contact with the air, and vanish.

The various solid bodies contained in the stream, though blended together by the flood, would not really mix or amalgamate. Their specific gravity would determine their position; the grease would float, the sand sink rapidly, straw and organic matter would be found in various degrees of suspension. They must all be disposed of.

Accumulations of gas remained to be dealt with. Where there is sewage-water, it is always accompanied by a discharge of carbonated hydrogen gas, which rises to the surface in numerous little bubbles. As the sewer has been so planned as to have a fall of about 13 inches where it joins the Seine, the water, when broken in the fall, parts with a portion of the gas contained in it. To take advantage of this, a cowl has been built over the cascade, which is surmounted by a fire of glowing coke; the blue flame of the carbonated hydrogen is easily recognized at the top of the vent, where it mounts and undergoes combustion, instead of bubbling up in the fleeting current.

To sum up these details; the foul stream which enters the sewer of Asnières, to be turned into the Seine at the lowest possible point, first encounters the barge with its moveable flood-gate. Finding no escape but by the aperture near the bottom, it is converted into a scouring torrent, which whirls along all the deposits for a distance of two and a half miles. A sort of floating island of scum is formed round the boat, from which the grease is collected for industrial purposes. At the mouth of the Seine the stream next encounters a long grating, suspended in mid-channel but disconnected with the bottom that the sand may pass freely. There it parts with all its floating substances, such as straw, vegetables, or wood, which form a bed (*paillasse*) on the inclined plane, from whence they are removed by drag-rakes.

Still farther on a bar is so placed as to form a fall of 18 inches; the sand is thus arrested, and the bank which it forms is continuously removed by the scoops of the steam-drag. The hood, with its fire of coke, placed over the fall, attracts and consumes the noxious gases.

The solid and gaseous bodies being thus disposed of, nothing remains but the fluid, which contains matter in chemical solution, and this may properly be turned into the Seine, because its purification will soon be accomplished by slow combustion under the influence of the atmosphere; the dark stain caused by its admixture will soon be obliterated, and before reaching Passy the river will have regained all its purity.

These statements have been chiefly derived from two reports by M. Mille, published in the Appendix to the "Annales de Vanjourns." For further explanations I am much indebted to the excellent models of sewers exhibited, among many others, in the French Department of the International Exhibition, as well as to the courtesy and patience with which the gentlemen in charge of these models have answered my inquiries.

When examining these models I at the same time saw with interest the pipes manufactured by M. Hermann et Compagnie, contractors for the Paris waterworks. These pipes are perfectly smooth within and without, and uniform from one end to another, without any kind of projection. When a joint is to be formed, a band of indiarubber is slipped over the ends of two pipes placed in juxtaposition. Over this band two iron rings, slightly conical in form, lying ready to hand on either pipe, are driven home till they almost meet. By this simple but effectual kind of joint, the use of solder and of skilled labour is dispensed with, the re-adjustment of one or two lengths much facilitated, whilst it is found in practice that for any given bore, required for any purpose, one-fifth less iron may be employed than has been usual. The pipes of all sizes now laid down for the Paris waterworks are thus united.

THE FATE OF THE EXHIBITION BUILDING.

AFTER having relieved the guarantors (thanks to the liberality of the builders) from liability to make good the deficiency in the receipts, caused by the grossest mismanagement that could be imagined, the next thing the Commissioners have to do is to decide the fate of the structure on the Exhibition coming to an end. Are they

to give it up to the contractors to be pulled down and removed, or will they take heart at the eleventh hour, and endeavour to devise an arrangement by which it may be preserved for future use? It would be very foolish to effect ignorance of what everyone connected with the Exhibition is talking about; and it would be worse than folly to attempt to conceal or deny it. There is no longer a doubt that the undertaking is a financial failure.

Under these circumstances, to which should be added the various mistakes of the commissioners themselves—their indifference to the wishes and convenience of the public, their numerous dodges to extract money from visitors, the ignorance and favouritism of the jury rewards, and the catalogue nuisance—it is evident that there will be no rally of public interest in favour of the Exhibition sufficient to increase the number of visitors beyond what will satisfy the contractors, and make the guarantors safe. We (*Building News*) are not so sanguine as to believe, like some of our contemporaries, that during the present month visitors will appear 100,000 in a day. On the contrary, we are more inclined to imagine that their numbers will grow less by degrees, and gradually smaller; for last week's returns show the attendance to have been less, by upwards of 60,000, than during the corresponding week of 1851. Last Saturday (Sept. 27th) only 10,000 paid at the doors. However, should we prove to be in the wrong, and crowds rush up from every part, even then the receipts would not in the end amount to sufficient to fulfil present engagements with the builders, and purchase the edifice from them as it stands with all its accessories; for the amount required to complete the purchase is no less than £180,000 after the guarantors have been made safe. Clearly this sum cannot be obtained from any possible increased number of visitors; and it is therefore to some other source we must look for means to purchase the edifice.

But "is Captain Fowke's design worthy of being preserved? Is it not a disgrace to the nation, and a libel on the actual state of architecture in England?" Professional men and amateurs will inquire. Whatever may be the sins of the design against that standard of aesthetics which so many set up, yet so few are able to define, there are economical reasons sufficient to justify, nay, imperatively to insist on, the preservation of the structure. Taking the most unpromising view of the question, namely, that the whole of the money necessary to complete the purchase, will have to be raised from independent sources, it will be seen that the building has cost £300,000, and that the whole of that will be lost, as regards any permanent use to the nation, unless £180,000 be raised to acquire the materials *in situ*, and which, if pulled down, would scarcely fetch that sum. The amount is certainly a large one, and yet £130,000 is a price dirt cheap to pay for such a structure, which covers 845,000 square feet or upwards of 21 acres of site, since it is but a fraction over 3s. the square foot. Never before was bare shelter to be obtained so economically. And if, as we (*Building News*) believe and hope, in common with great majority of the industrial and trading classes, periodical International Exhibitions have taken root here deep enough to grow into a national institution, then will it be the height of folly, the most astounding example of extravagance the world has seen for many days, not to purchase the building at so comparatively trifling an outlay, and thereby to compel the public to expend every ten years half a million of money. It is true that in certain *cliques* every effort is made to throw discredit on exhibitions in general, and that the errors of the commissioners have contributed to do so to some slight extent, until it is stated, with pretensions to speak authoritatively, that we have seen the last International Exhibition in London. A most unbecoming use is made of the late Prince Consort's influence on the public mind by asserting that he was opposed to periodical exhibitions, even to the present one. Of the truth of this assertion none can decide except the few who were admitted to the confidence of His Royal Highness, but we may be permitted to doubt it in the face of the support he gave to the scheme by presiding over a public meeting at the Society of Arts, and of the importance of his subscription to the guarantee fund.

Another pretended argument against future exhibitions is that manufacturers think them expensive, and the result not commensurably profitable. Upon the question of profits, the individual manufacturer alone can speak, and even in so commercial a matter he is not always to be implicitly believed. The public will be curious to hear the name of anyone whose experience of this year has decided him to abstain hereafter. Nearly everything exhibited that was for sale has been advantageously disposed of, and immense quantities have been sold from samples. Minton, Copeland, and hosts of manufacturers have done a most profitable trade. It has been even better with foreigners, and to such an extent that the middle-men, commission agents, talk of refusing to deal with manufacturers who exhibit and sell. In a matter of this kind we are bound to have recourse to the experience of the past to enable us to forecast the future. We find that neither the expenses of 1851, nor for the Paris Exposition of 1855, operated to deter people from exhibiting on the present occasion. Producers of works of industry were never more anxious to exhibit their wares to the public. The fact that there

were applications for tenfold the amount of space available for allotment is alone sufficient evidence of the falsehood of the allegation. So long as there are exhibitions there will be no lack of exhibitors. Our manufacturing superiority is no longer so great and so crushing as it was, for since 1815 we have sent mechanics to almost every part of Europe, and have instructed foreigners to compete with us. If we would maintain the lead, slight though it may be, it can only be by continuous attention to progress everywhere, and there are no means which admit of this being done so easily, and so efficiently as international exhibitions. A last objection is that decennial exhibitions leave too short an interval for study, preparation, and progress. In the history of the world, ten years are indeed a short period, but in the history of industry it is an epoch embracing the birth and practical realization of inventions. In the last decade we have witnessed the discovery of coal-tar dyes, the extensive substitution of jute for hemp, the establishment of submarine electro-telegraphy, the introduction of rifled artillery, the development of photography, the discovery of the new metal, aluminium, the construction of armoured ships of war, and of that huge leviathan, the Great Eastern, the elucidation of the system of great circle sailing, each of which may be said to have effected a sensation in the branch of industry to which it belonged. If the next decade be signalized by improvements as numerous and as important as those which have illustrated the one just ended, the next International Exhibition here will be no less instructive and useful than its predecessors.

Seeing these things, we may fairly conclude that we shall have International Exhibitions hereafter, and in that case it will be an immense economy to secure the present building.

If advantage be taken of the present opportunity, which is a golden one, to acquire possession of the edifice, the next exhibition will be housed for £130,000, and all the difference between that amount and the total receipts, after deducting current expenditure, will be so much clear profit, and be the nest-egg at least a quarter of a million sterling, of a fund to defray the cost of future exhibitions, or to be applied to develop the progress of industrial arts. Whatever may be said of the demerits of Capt. Fowkes' design, it is quite as good as that after which the Paris Palais de l'Industrie was built, though the difference between the materials—brick here and stone across the channel—tells vastly with the ignorant who do not know that the merits of an architectural design does not consist in the quality of materials, but in their combination of groupings in masses to produce an architectural picture by the play of light and shade. Now, a picture may be produced in brick as well as in stone. The Palais de l'Industrie is finished, and has received a due amount of exterior surface decoration. At South Kensington the structure is unfinished. The exterior is devoid of ornament, and is disfigured to meet the exigencies of the exhibition. But when the outside comes to be finished up in all the details, its appearance will be very different from what it now is. An attempt is to be made to improve the exterior by the introduction of mosaics. We have reason to believe the results will not be satisfactory.

The great question still remains, then—is the building to be retained? or, in other words, where is the money to come from? The first course that will naturally suggest itself would be the employment of the surplus from the Exhibition of '61. There can be no more legitimate application of the profits of one exhibition than to compensate the deficiencies of another, and provide a permanent home for future exhibitions; and the price might be reimbursed to the '61 Exhibition Commissioners out of the first receipts of the next. Something, too, would be earned in the interval. Government has to provide for the Royal Academy, and might rent some portion of the South Kensington Picture Gallery for that purpose, so as to save immediate outlay by that means on Wilkin's structure, and be enabled to wait more prosperous times for the rebuilding of a National Gallery. Many temporary exhibitions and entertainments would gladly rent parts of the building, so that enough money could be earned to keep the structure in repair, and to pay a fair rate of interest on the sum advanced to complete the purchase.

THE PRINCE CONSORT IRISH MEMORIAL

At a meeting, held on Saturday last, at the Mansion-house, Dublin, the Lord Mayor in the chair, it was announced that the fund had arrived to about £6,000, and that, therefore, the consideration of the site was desirable.

Mr. Justice Fitzgerald said there was every reason to hope that they would get a great deal more than had as yet been subscribed. It was stated on the last day that a great number held back until they should learn what the character of the testimonial would be. The learned judge then moved that, in the opinion of the meeting Stephen's-green would be the most appropriate site for the national testimonial, and remarked that the resolution had nothing to say to the character of the testimonial. The suggestion made at a previous meeting had met with such general approval that he was now induced to bring it forward in the shape of a resolution. Sir Robert Shaw seconded.

The Lord Mayor—I can say, from personal experience, that the public generally approve of the Stephen's-green project.

The resolution was carried unanimously.

Mr. Justice Fitzgerald then proposed a resolution to the effect that the conversion of St. Stephen's-green into a park open to the public during the day time under proper restrictions and safeguards, and the erection there of a suitable testimonial, would best tend to commemorate the special virtues of the late Prince Consort, and probably meet with the approval of Her Most Gracious Majesty. Upon the question of opening Stephen's-green considerable legal difficulty might arise, and it might be necessary to have a rectification of it by Parliament, but all that business devolved on the committee. There were three parties interested—the owners of property in the neighbourhood of the Green, the Corporation, who at present derived a rent out of it, and the third party was the public at large, who, if it were opened, would derive benefit from it. The last thing he should think of doing would be to bring forward any project that would create a controversy with respect to this national testimonial. He found in Whitelaw's History of Dublin, vol. 1, page 459, the following:—"In Speed's plan of 1610 we find a church dedicated to St. Stephen, of which no trace at present exists. It seems to have stood nearly on the site of the present Cattle Market. In the same plan we also find St. Stephen-street laid out, but not finished, and leading direct to the fields now occupied by this square (Stephen's-green), which thus naturally assumed the name of the first Martyr to Christianity." And at page 461 he speaks of the position formally and emphatically called "The Beaux-walk," from its having been "the resort of the gay, the beautiful, the fashionable, and the elegant." That was the foundation on which he made the statement, and he believed it to be correct. The Green was originally used for public purposes, and was called the Beaux-walk, because of the fashionable people who resorted to it; and if they could again render it the resort of the gay, the fashionable, and the elegant, they should be not only doing a benefit to the city but to all those who visited it.

The Lord Mayor thought he might safely hazard the opinion that the Corporation, as trustees of the public, would meet the views of the committee in the most liberal spirit.

Sir Robert Shaw observed that in converting Stephen's-green into a public park it would not be necessary to remove the railings.

Mr. Justice Fitzgerald said what he proposed was to have the Green opened like the Tuilleries Gardens or St. James' Park.

After some conversation Alderman Roe moved the following resolution, which was adopted:—"That a committee of seven persons be appointed by the general committee with full power to determine the character of the testimonial, subject, however, to the approval of her Majesty, and to carry into effect the foregoing resolutions."

Mr. Justice Fitzgerald mentioned that he had received from Mr. Morgan, the city solicitor, a valuable communication, enclosing plans and documents, which would be useful to the committee in considering this question.

The proceedings then terminated.

PROGRESS OF SANITARY REFORM.

THE town council of Edinburgh have decided upon putting in force the provisions of the Public Health Act (1862), in the practical way, by electing a medical officer of health, Dr. Littlejohn, with a salary of £500 per annum. Edinburgh is the fourth city in the United Kingdom to take this step in advance, and will have (should the newly-appointed officer answer the high expectations his testimonials would warrant), all the advantages so long enjoyed by London, Liverpool, and Manchester, in a thoroughly scientific system for the prevention of disease.

Edinburgh has a population but little more than one-half that of Dublin; its valuation is somewhat lower, but we must confess public opinion there is more enlightened and advanced than here. The registration of the causes of death has revealed fully and completely to the citizens of Edinburgh the extent of the evils flowing from sanitary delinquency. When will it do the same good service in Dublin?

THE UNION BANK OF IRELAND.

UNDER uncommonly favourable auspices, and with a Board of Management constituted of gentlemen of high commercial position and acumen, this establishment recently commenced business, and has, as we learn, so far progressed, even more encouragingly than its most sanguine projectors could have anticipated within such a period. Pending the erection of a permanent establishment on a suitable scale, the Directors took the premises, No. 11, Westmoreland-street, which they have converted into offices, adapted in every respect for a temporary purpose; the necessary alterations having been made by Mr. George Farrell, builder, and the internal fixtures and upholstery work by Mr. George Tickell, assisted by the professional advice of Mr. J. J. Lyons, of 26, Lower Gardiner-street, architect.

THE DUBLIN WATERWORKS.

List of Parties submitting Tenders for Contracts for Works in connection with improved Water Supply.

No.	Name.	Address.	Contract, No. 1, for Pipes.	Contract, No. 2, for Cocks, Valves, &c.	Contract, No. 3, for laying Pipes, Storage, &c.	Contract, No. 4, for Storage, Reser- voir, Filter Bed, &c.	Contract, No. 5, for Stillorgan Reservoir.
			£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1	Henry Grissell ...	London ...	...	3226 2 0	...	...	...
2	William Simpson ...	London ...	...	2207 7 4	...	...	...
3	William Baker ...	Bristol ...	...	...	45,948 1 1	...	...
4	George Jennings ...	Oxford ...	...	2745 15 0	...	...	...
5	James Aitkin ...	Glasgow ...	...	2101 15 0	...	...	...
6	Thomas Dunne and Co. ...	Manchester ...	...	2027 15 6	...	...	...
7	Richard Neville ...	Llanelly ...	...	1794 8 8	...	...	...
8	Hennet, Spinks, & Else ...	Bridgewater ...	...	2418 5 4	...	...	...
9	Cochrane and Co. ...	Middleboro' ...	102,425 9 7	...	...	...	...
10	Ormond, Grierson, & Co. ...	Manchester ...	...	2869 0 0	...	...	...
11	Edward Toomey ...	Dublin ...	...	2609 0 0	...	...	...
12	Henry Birley ...	Wigan ...	108,143 16 3	2341 14 0	...	...	...
13	Thomas Spittle ...	Newport ...	{ £6 5s. per ton, or 125,000 0 0 }	...	...	...	...
14	Thomas Docura ...	London ...	...	...	44,775 12 1½	...	...
15	William Handwick ...	Stafford ...	...	2684 19 6	...	...	...
16	Peters and Co. ...	London ...	...	...	56,000 0 0	...	...
17	D. Y. Stewart and Co. ...	Glasgow ...	101,418 16 0	...	...	...	...
18	A. H. Smith and Co. ...	Glasgow ...	...	3012 12 0	...	...	...
19	Moore, Brothers ...	Dublin ...	...	...	...	110,626 1 3	...
20, William M'Cormick, London and Derry, Tenders for all, £274,000.							
21	Guest and Chrimes ...	Rotherham ...	...	2160 17 0	...	...	...
22	David Manwell ...	Glasgow ...	...	...	42,790 19 10	...	...
23	Eddington and Sons ...	Glasgow ...	99,926 16 9	1809 15 0	46,525 8 11	...	...
24	William Barker ...	Liverpool ...	...	...	34,335 10 3½	...	...
25	John Martin ...	Dublin ...	...	...	...	29,183 2 0	...
26	Moxon and Co. ...	Dover ...	...	...	34,176 8 5	69,019 16 5	23,737 14 7
27	W. G. Armstrong & Co. ...	Newc.-on-Tyne ...	...	3965 10 0	...	...	...
28	M. H. Bourke ...	Dublin ...	...	...	...	19,513 5 8	...
29	J. Enright ...	Dublin ...	...	...	...	18,000 0 0	...
30	Edwards, Brothers ...	Belfast ...	...	...	51,377 15 1	151,075 5 11	23,000 0 0
31	J. Byrne ...	Dublin ...	...	...	...	...	20,793 12 8
			Average of 5. £107,382 19 8	Average of 15. £2,571 13 1	Average of 8. £44,490 9 5	Average of 3. £110,240 7 10	Average of 6. £22,371 5 9

Average total, £287,056 15s. 9d.

THE PROPOSED NEW CATHEDRAL AT CORK.*

THIS morning (Oct. 8) Mr. Tolerton, who was appointed by the committee to whom was entrusted the carrying out of the preliminaries for the collecting of a public subscription and the procuring of plans for the rebuilding of the Cathedral of Cork, entered upon his duties of opening and hanging the several plans sent in. The place appointed for this purpose is the Banquet Hall of the Athenæum. The space supplied by the walls of this spacious apartment is all but inadequate for the display of the principal drawings, as the plans amount to no less a number than sixty-four, which, with their sectional drawings, comprise many hundred sheets. The names of the designers are only known to themselves, as, in conformity with the instructions, they could only be received under seal, motto, or cypher. It is, however, known that they have come from Cologne, London, Edinburgh, Dublin, York, Liverpool, Bristol, Eton, Belfast, &c., besides a considerable number the production of Cork professionals. This display of beautiful and elaborate designs, which makes an architectural picture gallery of great interest, has been brought together by the offer of a premium of £100 for the most approved plan, and £50 for the second. Each design comprises drawings of a ground plan, elevations, and longitudinal and transverse sections, all on a scale of ten feet to the inch, and are executed in Indian ink or sepia, coloured drawings being excluded. Each set of drawings is accompanied by an estimate of cost, and a description of the materials to be used in the building. The value of the drawings may be conceived when it is mentioned that the committee has insured them against accidents by fire to the amount of £3,000. Pending the decision of the judges, it would be improper to criticise or enter into comparison of these works of art, and may be sufficient to remark that the exhibition, when opened to the public, will be admitted to be the largest and most choice col-

lection ever brought into competition in this country. All the designs are most elaborately worked out in their several details. The exteriors are imposing and architectural, while the interiors display sacred grandeur that commands reverence. In fact, whichever of them the selection confirms, will supply an edifice worthy of being the principal church of the see of Cork, Cloyne, and Ross. The site of the proposed building is that on which the ancient Cathedral of St. Finn Barr at present stands. The building rises within an area of between two and three acres, which is a wooded cemetery on the high ground to the south-west of the city, and which is open to the view of the greater number of the streets, and can be seen from all the high lands which command the city, and which are thickly studded with the residences of the gentry and inhabitants of Cork. Having such a position for a building dedicated to such a purpose, it may be advisable not to confine the expenditure to the sum at present estimated, £15,000. Though it is understood that the designers of the plans sent in have confined themselves to the projection of buildings that will not exceed that amount, few, it is believed, after examining each drawing in detail, will be satisfied that such extensive and elaborate buildings can, under any circumstances, be completed for such a sum of money. The building is to afford, without galleries, accommodation equal to seven hundred sittings, besides large space for the other purposes of choral service. In the afternoon of this day the committee will meet, and for the first time examine the drawings, and determine when they are to be open for public inspection, and at what charge. It is believed that the time for exhibition will be fixed for next Monday, and that they will be on view for a month, after which the prizes will be adjudged. The subscription list already amounts to £600, and it is naturally expected that when the public is accorded an opportunity of knowing what their donations can produce, the list will rapidly fill in, and Cork be adorned with a building worthy of its position, and one that will attract the attention of visitors.

* Correspondent of *Saunders*.

SUBURBAN IMPROVEMENTS.

For many years past the suburbs of this city have been increasing with a rapidity perhaps unparalleled in the kingdom, except in the case of the great metropolis itself; and we are much gratified in directing especial attention to the progress of that portion at the south side adjoining the Rathmines township, which, but a comparatively short time since, simply comprehended green fields and barren wastes. Numerous thoroughfares and branch roads have recently sprung up, either independently or as a part consequence of the erection of the new Molyneux Church and Asylum (fully described and illustrated in this Journal), at Leeson Park, close by Upper Leeson-street, whereupon terraces and villas, detached and semi-detached, and of varied designs and classes, have been erected. On Raglan, Waterloo, Pembroke, and other roads in the locality referred to, dwellings suited to the highest gentry in our land have been reared, some of them displaying much taste and originality of design; others, though less architecturally pretentious, at least evidencing by their solidity and outward show the well-to-do condition of both the proprietors and the occupants. We propose to notice these and many others in various neighbourhoods in rotation, but at present confine ourselves to the consideration of a range of domestic structures recently erected on Leeson Park road, and known as "Warwick-terrace," the proprietor being Mr. William Wight, of Eustace-street; the architect Mr. Carson, of Harcourt-street; and the builders Messrs. John Butler and Son, of Rathmines. The range in question comprises eight dwelling-houses, three storeys high, including basement, two of which form a central projecting feature, while three others at either side complete the façade; those at ends having retiring entrance porches, one storey in height, and surmounted with terra cotta casts of the celebrated "Warwick vase" immediately over a neat cornice and blocking. In point of originality of design we have little subject for criticism in this instance; nevertheless, as mere originality does not always constitute suitability or comfort, so essential in domestic structures, we feel justified, when the latter elements are combined, to give place to a notice in our record, as an illustration of "suburban improvements." The basement storey, sunk several feet below the roadway, is built of punched granite stone, with a chiselled string course on the offset at level of principal floor, and comprehends the usual culinary arrangements, excellently well sewered, with accessory apartments; the other storeys also presenting the usual and necessary accommodation, with various modern improvements; and, at the rear, from which an uninterrupted view of the Wicklow mountains is commanded, are moderately long gardens and first-class stabling, &c.

Spacious flights of steps, of Ballyknockin granite, lead to each hall-door, and are enclosed with curbs and cast iron railings of an ornate character. A dwarf wall, with piers and gates at intervals, defines the boundary in front, and encloses prettily laid out flower gardens, narrowing towards one end, the ground being of irregular form. The front is faced with red stock bricks from Belfast (Moore's patent), the quoins, ornamental frieze course, main cornice, chimney-shafts, &c., being in cement. A notable feature is the quadrant form of window reveals, the first of the kind (that we are aware of) introduced into Ireland, and admittedly effective. All the front windows are fitted with plate glass. The workmanship throughout in every department is of a highly excellent character, and the terrace a decided acquisition to the rising neighbourhood. We understand that its cost exceeded £6,000, and we hope to see many such others raised in the ensuing spring.

THE WINTER GARDEN COMPETITION.

We understand that the Committee, previous to final decision, summoned before them last week Messrs. Alfred G. Jones, E. H. Carson, and Rawson Carroll, architects—the authors of the designs marked respectively "C," "J," and "Q"—for the purpose of ascertaining their opinions chiefly as regards the cost of erecting the building according to same, should they select either. They separately examined each gentleman, but the decision has not yet been communicated.

It may be a question as to whether this examination referred to the first and second premiums or to the second only. The result is awaited with much anxiety, not only by the competitors, but the public generally.

Relieved by this circumstance from the silence which good taste only imposed, as to the authorship, we may now state that the following is believed to be a correct list of the competitors whose designs we noticed favourably to any extent; the others shall be nameless.

(A), Mr. Lee, London; (B), Green and De Ville, do.; (C), A. G. Jones, Dublin; (D), F. W. Shields, London; (E), Kelk and Lucas, do., assisted by, or independently, Captain Fowke, R.E.; (F), W. J. Barre, Belfast; (G), D. C. Ferguson, Dublin; (J), E. W. Carson, do.; (N), Lanyon, Lynn, and Lanyon, do.; (O), W. R. Farrell, do.; (Q), Rawson Carroll, do.; (R), Thomas Turner, Belfast and Glasgow; (U), J. M'Curdy, Dublin; (V), W. D. Smith, do.; (W), Jones (?), Hemming, and Co., London.

RETIRING PLACES.

We have drawn frequent attention to the fact that Dublin, of all the principal cities in the kingdom, was the least provided with "retiring places," where the necessities of nature might be gratified with becoming decency, as elsewhere—London, Liverpool, Manchester, Glasgow, &c., for example; and it is with no small pleasure that we now notice—although somewhat late—that our Municipal Corporation have made a beginning in that regard. Last week two double urnals of cast iron, the manufacture of Messrs. George Smith and Co., of the Sun Foundry, Glasgow, were fixed at College-street and Bachelor's-walk respectively, the former at the rear of Moore's (beautiful?) statue, and the latter on the pathway next the quay wall, and adjoining Carlisle Bridge. We are not quite sure that either of these sites has been judiciously selected, for the better classes of the Dublin public are too fastidious in their notions of propriety to avail themselves largely of the accommodation so afforded in conspicuous places, as do the London public (more miscellaneous) at Farringdon-street, the Strand, &c.; and for that reason we should have been more in favour of retired positions, in proximity with each great thoroughfare, rather than directly upon it. Custom of a country has important influence on the success of every innovation or experiment, and it should, therefore, command every consideration. The *cabinets d'aisances*, so frequent in continental capitals, would not suit the general habits and notions of people in these countries; and again, what may suit London—the metropolis of the world—in some respects, might not find favour in a city of such comparatively limited proportion and dimensions as Dublin. However, far from throwing "cold water" (metaphorically speaking, of course) on this movement, we shall view both its public appreciation and extension with great interest, as a very positive step, not only in sanitary improvement, but as a happy contrast to the demoralizing and indecent uses to which every lane and alley, every bye-place in the city, is subjected—a matter of comment for every intelligent stranger that ever visits it—and a marked disgrace to our police authorities. Capel-street, Thomas-street, George's-street, and Great Britain-street neighbourhoods especially would materially benefit by the accommodation in question.

ARTIFICIAL STONES.

At the meeting of the British Association of Science and Art on Thursday week, Professor Ansted, M.A., F.R.S., read a paper on "Artificial Stones." In this paper the author described the various materials and contrivances used for the purpose of replacing stone where natural stone could not be obtained with advantage. He described in succession terra-cottas, cements, and siliceous stone, describing the nature, properties, uses, and disadvantages of each. He alluded to his own observations on the subject, and also to that of the preservation of stone as connected with it. He then described a new and very remarkable material recently introduced by Mr. Ransome, and experimented on by the chemists of the Committee of Chemists and others appointed last year by the Board of Works in reference to the Palace at Westminster. This material was afterwards manufactured in the presence of the section by Mr. Ransome. It consists of any kind of mineral fragments, sand, limestone, or clay, mixed into paste by a mould with fluid silicate of soda (obtained by digesting flints in a steam boiler under high pressure in alkali), and afterwards dipped into a solution of chloride of calcium. The result is an almost immediate hardening of the pasty mass, and the specimens constructed were within a few minutes handed about the room. One specimen, weighing two tons, is in the International Exhibition, while others may be seen in the new façades of the Metropolitan Railway. These afford sufficient proof of the extent to which the manufacture has already advanced.

"CUI BONO."

UNDER this motto an architect—recently established as a local practitioner—submitted, about two months since, in compliance with a public advertisement offering a premium of £20 for a design for the improvement of the approach to the City Hall, which was approved of by the Committee, and recommended to the Council for adoption; but certain members of same would now rather prefer to postpone the award of the premium, because, forsooth, there seems to be a prospect of other arrangements consequent on the acquisition of the adjoining Police Courts, and which might cause a change of intention. This is not a just act to the gentlemen induced to compete on a certain understanding; and whatever subsequent circumstances may have intervened, it would be a breach of good faith were the premium not to be awarded to the approved plan, although we are bound to admit that we consider it contains a feature which, if carried out, would be objectionable in such a public (indeed, in any) thoroughfare, namely, a stepped flagway on an incline.

ARCHITECTURE OF THE INTERNATIONAL EXHIBITION.*

AN architectural report for the year 1862, which professes to be discursive, can hardly omit some reference to the Great International Exhibition. The building itself has certainly not been a happy illustration of English architectural art; nor, even if iron and glass are to be henceforth the popular materials which the architect will be called upon to employ, can this be called a successful adaptation of them. It is a decided falling off from the constructive success of the Crystal Palace at Sydenham, and its main defect is in the feature to which it looked for its greatest triumph. It has proved the utter absurdity, both for effect and convenience, of a dome of glass. Even had the domes been raised on the drum, or upright circular base, on which every dome should rest, yet the material of glass is as inefficient to give a pleasing external outline against the sky, as it is, domically used, ill-fitted to give an agreeable light within. The fact of the necessity of suspending a veil in the western dome to make the glare and heat supportable, is sufficient proof of its inconvenience in this latter respect. The failure of a glass dome, years ago, in the stables of the Pavilion at Brighton, ought to have prevented this unfortunate experiment. We must only be thankful that we were spared the still larger central dome with which we were once threatened; and we shall be surprised if, after witnessing our mistake, the French persist in carrying out this feature in the Permanent Exhibition Building which is already rising at Paris. The eye raised up to the concave surface of a dome, seeks the repose which opacity and solidity alone can give; and to be met with a glaring stream of light in place of this repose is most repelling and painful. It is the only place and occasion, perhaps, in which we should not wish the sun to shine. It seems to me that there is needed a strong expression from all lovers of art in Great Britain against the perseverance in the perpetration of such architecture as South Kensington delights in. This indescribable composition, whose boast it is that it dispenses alike with architect and style, is gradually establishing itself over the whole area obtained by the Commissioners with the profits of the Exhibition of 1851. The Horticultural Gardens have, to my mind, been piteously sacrificed to it; and there is now growing up in the centre of the South Kensington Museum a permanent erection which, though certainly well adapted to set off the splendid treasures of the Art-upon-Loan Exhibition, yet holds them in no other fashion than the jewel is held in the toad's head. The old corrugated iron Brompton boilers all could put up with. They were so avowedly temporary that one rejoiced that their ugliness eventually enforced something better, and that their cheapness offered no bar to their speedy destruction; but when permanent buildings are being erected to hold the art treasures of the kingdom, we may well expect that some architect of note should be called in to save us from such fearful inflictions as are exhibited in the strange construction and anomalous ornamental details of the new buildings. Even humble provincial societies like our own may do some good by an expression of their opinion, because they are thoroughly free from that professional jealousy which is alleged by the advocates of this new style as the motive of the opposition which has been raised against it.

Altogether, architecture has received poor recognition from the Exhibition Commissioners. It had some difficulty in gaining any position there; and as far as foreign architecture is concerned, it can hardly be said to be represented at all. But the English department shows unmistakably that whatever life and progress there is in British architecture, it is wholly in the line of Gothic development.

I cannot but consider the Majolica fountain a great mistake; not but that there is much merit in its design and proportions, but it errs in the use of the material employed. It seems as great a deflexion of good taste in one extreme to apply pottery to such a large and permanent structure, as to me it has always seemed in the other extreme to apply minute and exquisite miniature painting, as in Sèvres porcelain, to so brittle and insignificant a ware. China has been most felicitously ornamented and employed by that people who first manufactured it, and from whence it derived its name. The French bronze fountains in the Horticultural Gardens were much more fitted for their purpose, as well as more elegant in form, and are at least proof against the stone-pelting of mischievous boys.

THE EDINBURGH BOTANIC GARDENS OPENING QUESTION.

THE prayer of the petition sent from Edinburgh in favour of opening the Botanic Gardens on Sunday afternoons, signed by upwards of 14,000 male citizens, is explicitly stated to be during the hours not usually devoted to public worship. This fact has been ignored by the Sabbath Alliance and their friends, in all their communications with the public.

* From a paper read by the Rev. Canon James at Northamptonshire Architectural Society.

The Alliance also states that the movement for opening the Gardens is a "complete innovation of the established usages of the people of Scotland!" This is incorrect. The common practice of the citizens of Edinburgh, at least, is to walk on Sabbath evenings. Thousands are seen in the meadows, Queen's Park, and other places, and also visiting the cemeteries. The clergy themselves walk in their own gardens on the Sunday, and why should the Botanic Gardens not be opened to the working classes as a place of innocent and instructive recreation?

When praiseworthy efforts are making to shut up places of questionable resort, it is highly necessary to encourage the opening of places of a more elevating tendency.

With reference to what has been stated as to the necessity of employing the gardeners on Sabbath for the protection of the Gardens, in the event of their being opened on the Sundays, it is known that a portion of the men are at present required to be on duty on that day; and what little extra assistance might be required, could be rendered by the police, as at our Gardens at Glasnevin.

The *Freeman's Journal* of the 20th ult. says:—"The following returns will show how generally the Gardens are used as a place of recreation and instruction:—On Sunday, the 7th inst., the number of visitors was 12,561, and on Sunday, the 14th inst., 10,240. On these vast crowds leaving, every part of the Gardens and conservatories were inspected, and the Curator states that he could not discover that the slightest damage had been done by the people."

AVENUE VICTORIA, PARIS.

VICTOR HUGO recently bewailed the destruction of that old Paris with which he was acquainted, and which he invested with a world-wide renown. Its narrow, tortuous streets, into which the sunlight never pierced—where the projecting roofs of the houses almost joined—where the pavement was always damp and greasy—was, and still remains, the only Paris known to one of the most illustrious of Frenchmen. The same hand which swept the author of "Notre Dame" from French soil has destroyed those familiar objects around which in exile his fancy plays. The architecture of Napoleon III. has arisen upon the ruins of the old quarters. The Place de Greve, amongst other memorable sites, has had, as far as its buildings are concerned, its history obliterated. The little tower where the Prince of Condé, in 1652, rested after his sanguinary battle against Turenne, in the Faubourg St. Antoine; where Flesselles—struck mortally on the steps of the Hotel de Ville—was brought to die in 1789, and whence his head was carried in horrible triumph, is no more to be seen. At the northern angle of the square there was a group of 16th century gabled houses, which were bought—in pictures—over and over again. The whole square—wherein the guillotine reared its hideous frame—was the scene of too many tragic and historical events, and of the romances founded on them, to be easily forgotten. All has now, however, disappeared; the guillotine has been sent farther eastward; gables, tower, old houses, with their historical bay-windows and old associations, are alike demolished. The site has been levelled and enlarged. To the west of the square, where the visitor formerly might lose himself in a labyrinth of reeking alleys, a handsome street has been cut. This avenue is lined, like the western side of the Place de Greve, by lofty and imposing houses. Trees are planted there, as in the large Boulevards. It is connected with the Place du Chatelet, with the tower and square of St. Jacques de la Boucherie, to the south of which the new Lyric Theatre has just been built; there also is the Depot General des Archives, and several other public offices. But that which gives Englishmen a greater interest in this than in other similar avenues in New Paris, is the fact of its being called the "Avenue Victoria."

Hardly was the road marked out, when the Queen of England, in 1855, then on her visit to the Emperor, passed through it, to attend the fete given in her honour by the Corps de Ville. The sides of the avenue were then covered with painted representations of the houses now built, garlands were hung across it, and flags were fluttering in profusion. To commemorate this visit, our courteous neighbours have called the street the "Avenue Victoria."—*The Building News*.

Amongst the organised parties visiting the Exhibition yesterday were the whole of the establishment of Messrs. Colman, of London and Norwich, the most extensive manufacturers of mustard in the United Kingdom. The firm paid the whole expense of 500 respectable mechanics employed by them in mustard, starch, and blue making, and the other works connected with so extensive a concern. The visitors were all entertained to their entire satisfaction by Mr. Morrish, and left in the evening in a whole squadron of omnibuses, delighted with the holiday they had enjoyed.

THE RECENT BRITISH ASSOCIATION MEETING.

ON the whole, the meeting at Cambridge just concluded, was neither in point of number or interest to be compared with many of those preceding; the subscription list was below the average, and disappointment seems to have resulted. Many valuable papers, no doubt, were read, and many comprehensive presidential addresses delivered, but we cannot nevertheless conceal from ourselves the fact that, from some one cause or another, the result was a comparative failure. Next year it will meet in Newcastle, with Sir William Armstrong as president.

We subjoin lists of the members of each committee, and of the papers read.

SECTION A.—MATHEMATICAL AND PHYSICAL SCIENCE.

President—G. G. Stokes.

Vice-Presidents—Prof. Adams, Rev. Prof. Challis, Rev. Dr. Lloyd, Rev. Prof. Price, Gen. Sabine, Rev. Dr. Whewell, Lord Wrottesley.

Secretaries—Prof. Stevelly, Prof. H. J. S. Smith, Prof. Clifton.

Committee—The Astronomer Royal, N. Beardmore, Capt. J. Belavenetz, Admiral Sir E. Belcher, Rev. G. C. Bell, W. H. Besant, Prof. Dr. J. Bolzani, Prof. G. Boole, A. Brady, C. Brook, Rev. J. Booth, Rev. W. M. Campion, A. Cayley, M. A. Des Cloizeaux, Rev. W. H. Cookson, Rev. S. Earnshaw, Dr. Eisenlohr, Dr. E. Esselbach, W. Eason, Rev. N. M. Ferrers, F. Galton, J. P. Gassiot, J. H. Gladstone, J. Glaisher, H. Godfray, G. Griffith, Rev. R. Harley, Prof. Hennessy, F. Jenkin, Dr. J. P. Joule, Rev. T. P. Kirkman, Dr. Lee, G. D. Living, E. J. Lowe, Rev. R. Main, J. Nasmyth, Rev. S. Parkinson, Prof. Dr. Phillips, Rev. J. Porter, Rev. C. Pritchard, Dr. Quinke, W. J. Macquorn-Rankine, W. H. L. Russell, Rev. Dr. Robinson, E. J. Routh, Rev. Dr. G. Salmon, Prof. Slessor, Rev. Prof. Selwyn, W. Spottiswoode, Balfour Stewart, E. J. Stone, Col. Sykes, Prof. J. J. Sylvester, G. J. Symons, Prof. J. Thomson, I. Todhunter, Prof. Tyndall, Prof. Wartmann, Mr. Waterhouse.

Suggestions on balloon navigation, by Isaac Ashe, M.B.

Extract from an account of a visit to the Kew Observatory, presented to the Portuguese government, by Prof. J. A. De Souza, professor in the University of Coimbra.

On some peculiar features in the structure of the sun's surface, by Mr. J. Nasmyth.

On the construction and effect of the reflecting plate of glass as suggested by Sir John Herschel, by Rev. Dr. Pritchard.

On the extent of the earth's atmosphere, by Prof. Challis.

On the augmentation of the apparent diameter of a body by its atmospheric refraction, by Prof. Challis.

On the Hindu method of calculating eclipses, by Mr. W. Spottiswoode.

On British rainfall during 1860–1861, by Mr. G. J. Symons.

On the performance, under trying circumstances, of a very small aneroid barometer, by Mr. G. J. Symons.

Observations on three of the minor planets in 1860, by Mr. Norman Pogson; communicated by Dr. Lee.

On the mechanical power of electro-magnetism, with special reference to Dr. Joule and Dr. Scoresby's Theory, by Dr. J. Croll.

Provisional report on a proposed standard of electrical resistance, by Mr. Fleming Jenkin.

Provisional report on thermo-electric currents in circuits of one metal, by Mr. F. Jenkin.

Report on certain dynamical problems, by Mr. A. Cayley.

On a certain curve of the fourth order, by Mr. A. Cayley.

On the representation of a curve in space by means of a cone and conoid surface, by Mr. A. Cayley.

On a certain class of linear differential equations, by Rev. R. Harley.

Some account of recent discoveries made in the calculus of symbols, by Mr. W. H. L. Russell.

On meteorology, with a description of new meteorological instruments, by Mr. T. L. Plant.

On an instrument for describing geometrical curves, invented by Mr. H. Johnston, described and exhibited by the Rev. Dr. Booth.

Observed R.A. and N.P.D. of Comet II. 1862, by the Rev. R. Main.

On the dimensions and ellipticity of Mars, by the Rev. R. Main.

On the zodiacal light and shooting stars, by Prof. Challis.

On autographs of the sun, by Prof. Selwyn.

SECTION B.—CHEMICAL SCIENCE.

President—W. H. Miller.

Vice-Presidents—Dr. Daubeny, J. P. Gassiot, Dr. Gladstone, Rev. W. Vernon Harcourt, Dr. Joule.

Secretaries—W. Odling, Prof. Roscoe, H. W. Elphinstone.

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Vernon Harcourt, Dr. Hunt, Dr. Bence Jones, Prof. De Köninck, Dr. Kühne, Dr. Von Lang, Prof. Liveing, Maxwell Lyte, Dr. Meidinger, Prof. Maskeyne, Dr. Paul, T. C. Sorby, Prof. Szabó, Prof. Tehnaut, C. Tomlinson, J. Young.

Description of a rapid dry collodion process, by Mr. T. Sutton.

Remarks on ozone, by Mr. E. J. Lowe.

On the essential oil of bay, and other aromatic oils, by Dr. J. H. Gladstone.

On the existence of aniline in certain fungi, which become blue in contact with the air, by Dr. T. L. Phipson.

On the artificial formation of populine, and on a new class of organic compounds, by Dr. T. L. Phipson.

Analysis of the diluvial soil of Brabant, &c., known as the Limon de la Hesbaya, by Dr. T. L. Phipson.

Notes on the decomposition of the organo-metallic radicles, by Mr. G. B. Buckton.

On the mode of preparing carbonic acid vacua, by Mr. J. P. Gassiot.

On the synthesis of some hydro-carbons, by Mr. W. Odling.

Modification temporaire et permanente apportée par la Chaleur à certaines propriétés optiques du feldspath orthose, de la Cymophane et de la Brookite, by M. A. Des Cloizeaux.

On the adulteration of linseed cake with nut cake, by Mr. W. H. Harris.

SECTION C.—GEOLOGY.

President—J. B. Jukes.

Vice-Presidents—Rev. Prof. Sedgwick, Sir C. Bunbury, R. A. C. Godwin-Austen, Prof. Ansted.

Secretaries—Prof. Rupert Jones, L. Barrett, H. C. Sorby.

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On a whittled bone from the Barnwell gravel, by Mr. H. Seeley.

On a deep well at Norwich, by J. Crompton, Esq.

On a tertiary bituminous coal in Transylvania, with some notice on the brown coals of the Danube, by Prof. Ansted.

On the alluvial deposits of the Rhine, by Mr. R. A. C. Godwin-Austen.

On an ancient sea-beach and bed at Fort William, by Mr. J. G. Jeffreys.

On the Wokey Hole hyena-den, by Mr. W. Boyd Dawkins.

On the last eruption of Vesuvius, by Dr. Daubeny.

On an extinct volcano in Upper Burmah, by Mr. W. T. Blanford.

On the comparative structure of artificial and natural igneous rocks, by Mr. H. C. Sorby.

On the Skiddaw slate series, by Prof. Harkness.

Contributions to Australian mesozoic geology, by Mr. C. Moore.

On the co-relation of the slates and limestones of Devon and Cornwall with the old red sandstone of Scotland, by Mr. W. Pengelly.

SECTION D.—ZOOLOGY AND BOTANY, INCLUDING PHYSIOLOGY.

President—Prof. Huxley.

Vice-Presidents—Prof. Balfour, Rev. Dr. Cookson, J. Gwyn Jeffreys, Rev. Leonard Jenyns, Dr. Lankester.

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On the inflorescence of plants, by Mr. J. Gibbs.

On two aquatic species of hymenoptera, one of which swims with its wings, by J. Lubbock.

Exhibition of a specimen of *astarte compressa*, having its hinge-teeth reversed, by Mr. J. Jeffreys.

On the toot-poison of New Zealand, by Dr. W. Lawder Lindsay.

On the influence of the conditions of existence in modifying the characters of species and varieties, by the Rev. W. N. Molesworth.

Experiments with the seed of malformed roots, and on the ennobling of roots, with particular reference to the parsnip, by Mr. J. Buckman.

Recent experiments on heterogenesis, or spontaneous generation, by Mr. J. Samuelson.

On the zoological significance of the brain and limb characters of

man, with remarks on the cast of the brain of the gorilla, by Prof. Owen.

On the homologies of the bones of the head of the *polypterus niloticus*, by Prof. R. Owen.

On the characters of the aye-aye, as a test of the Lamarckian and Darwinian hypothesis of the transmutation and origin of species, by Prof. R. Owen.

Observations of the habits of the aye-aye living in the Gardens of the Zoological Society, Regent's Park, London, by Mr. A. D. Bartlett.

On ribs and transverse processes, with special relation to the theory of the vertebrate skeleton, by Dr. Cleland.

On the structure of corympha, by Prof. Allman.

SUB-SECTION D.—PHYSIOLOGY.

President—Dr. G. E. Paget.

Vice-Presidents—Dr. J. Davy, Dr. G. M. Humphry, Prof. Owen, Prof. Rolleston.

Secretaries—Dr. F. Smith, G. E. Helm.

Committee—Dr. J. Boycott, Dr. W. Camps, W. H. Flower, Dr. M. Foster, R. Garner, Dr. G. D. Gibb, Dr. G. Gray, Prof. G. Harley, Dr. T. Heaton, Dr. T. Hodgkin, Dr. H. Bence Jones, P. Marshall, Dr. R. M'Donnell, Dr. W. Ogle, Dr. C. B. Radcliffe, A. Ransome, Dr. B. W. Richardson, Dr. G. Robinson.

On the question whether arsenic taken for lengthened periods in very minute quantities is injurious, by Dr. J. Davy.

On secret poisoning, by Prof. Harley.

On the difference of behaviour exhibited by inuline and ordinary starch when treated with salivary diastase and other converting agents, by Prof. Rolleston.

Observations made at sea on the motions of vessels, with reference to their effects in producing sea-sickness, by Mr. J. W. Osborna.

SECTION E.—GEOGRAPHY AND ETHNOLOGY.

President—F. Galton.

Vice-Presidents—Rev. J. W. Blakesley, J. Crawford, W. Spottiswoode, Rev. G. Williams.

Secretaries—Dr. Norton Shaw, T. Wright, Dr. Hunt, Rev. J. Glover, J. W. Clarke.

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Ascent of the Cameroons Mountains, by Capt. R. Burton.

On colour as a test of the races of man, by J. Crawford, Esq.

Letter from eastern Africa, by Dr. Livingstone.

On the proceedings of the United University Missions, by the Rev. H. C. Scuddamore.

Voyage on the lake Nyassa, eastern Africa, by the Rev. Mr. Stewart.

On the trans-Indus frontier of British India, by Major Walker.

On the climate of Guernsey, by Prof. Ansted.

On Vancouver's Island, by Commander Mayne.

An account of the veddahs of Ceylon, by Mr. J. Bailey.

A journey to Harran, in Padan Aram and thence over Mount Gilead into the Promised Land, by Dr. C. T. Beke.

Ascent of Um Shaumur, in the peninsula of Sinai, by the Rev. G. Prout.

On the middle island of New Zealand, by Mr. J. Rochfort.

SECTION F.—ECONOMIC SCIENCE AND STATISTICS.

President—E. Chadwick.

Vice-Presidents—Col. Sykes, W. Tite, T. Webster, J. Heywood, *Secretaries*—E. Macrory, H. D. Macleod.

Committee—H. J. Bohn, Rev. Dr. Booth, C. H. Bracebridge, S. Brown, Dr. Camps, Mayor of Cambridge, David Chadwick, Hepworth Dixon, Rev. W. Emery, Dr. Farr, H. Fawcett, W. Felkin, J. W. Gilbert, S. Gregson, F. W. Haddon, Prof. Hennessey, E. Hill, Rev. Prof. Kingsley, G. D. Living, M. H. Marsh, Rev. W. N. Molesworth, Rev. W. Monk, A. Moore, Right Honorable Joseph Napier, Bishop of Natal, Alderman Neild, F. Purdy, Prof. Thorold Rogers, Signor Quintino Sella, R. J. Spiers, T. B. Sprague, J. A. Turner, Right Hon. S. Walpole, Rev. Dr. Whewell, Right Hon. J. Whiteside, R. Wilkinson, Rev. H. B. Wilson, T. M. Wright.

On expectation of life, by Mr. C. M. Willich.

On the numerical mode of estimating educational qualifications, as pursued at the Greenwich Hospital School, by the Rev. G. Fisher.

On the economic effects of recent gold discoveries, by Mr. H. Fawcett.

On local taxation and real property, by Mr. F. Purdy.

On the income tax, by Mr. W. T. Thornton.

The tariffs and trade of various countries during the last ten years, by Mr. R. Valpy.

On the practicability of a division of the employer's profits amongst the work-people, by Dr. Watts.

SECTION G.—MECHANICAL SCIENCE.

President—Dr. Fairbairn.

Vice-Presidents—J. Nasmyth, Prof. Rankine, Dr. Robinson, J. Scott Russell, Prof. Thomson, C. Vignoles.

Secretaries—P. Le Neve Foster, W. M. Fawcett.

Committee—R. Abernethy, J. G. Appold, T. Aston, Admiral Sir E. Belcher, G. Bidder, Sir J. Dalrymple Hay, Prof. Downing, E. Easton, J. M. Gilbert, J. Heywood, Dr. Joule, W. Lindley, J. R. Maclean, J. M'Connell, R. Mallet, R. W. Mylne, J. R. Napier, J. Oldham, W. Pole, W. Smith, C. W. Siemens, T. Webster.

On the importance of economising fuel in iron-plated ships, by Mr. E. E. Allen.

Dr. F. Grimaldi read a paper descriptive of a new marine boiler for generating steam of high pressure.

On the failure of the sluice in fens, and on the means of securing such sluices against a similar contingency, by Mr. W. Thorold.

Mr. J. Oldham read the report of the committee appointed last year to make tidal observations in the Humber.

On the strains in the interior of beams and tubular bridges, by the astronomer royal.

Prof. D. T. Ansted, M.A., read a paper on artificial stones. He alluded to experiments made in the laboratory on the various methods suggested for preserving stone by a section of the committee recently appointed by the Board of Works in reference to the Palace of Westminster; Dr. Hoffman, Dr. Frankland, Mr. Abel and the author being members of it. During their investigations a remarkable material was submitted by Mr. Ransome for their consideration, and its discovery arose out of Ransome's method of preserving stone by effecting a deposit of silicate of lime within the substances of the absorbent stone, by saturating the surface with a solution of silicate of soda, and then applying a solution of chloride of calcium; thus producing a rapid double decomposition, leaving an insoluble silicate of lime within the stone, and a soluble chloride of sodium, which could afterwards be removed by washing. To prove this, Mr. Ransome made small blocks of sand in moulds by means of silicate of soda, and then dipped them in chloride of calcium. The result was the formation, almost instantaneously, of a perfectly compact, hard, and, to all appearance, a perfectly durable solid. Mr. Ransome at once adopted the process for the formation of an artificial stone which, the author of the paper considered would combine the advantage and show some of the disadvantages of other artificial stones. Experience, however, can alone be the test of its durability.

Mr. R. W. Woolcombe then brought forward a paper on oblate projectiles with cycloidal rotation contrasted with cylindro-ogival projectiles having helical or rifle rotation.

Mr. Le Neve Foster read a paper, communicated by Mr. C. Hart, on type composing and distributing machines.

KINGSTOWN COMMISSIONERS.

A COMMITTEE meeting was held on the 10th inst. Mr. Chambers, J.P., (Chairman). The inspector's report was read, recommending that the hay brought into Kingstown should be sold in the widest part of Kingstown avenue until better accommodation could be had. He also recommended that the board should advertise for a contractor to provide stones for paving the streets.

Mr. Calbeck suggested that an estimate should be made out as to the probable expense of repairing the road at Jugry's-well, and removing the supply of water from it to a more convenient place. He was also of opinion that the gentry of the neighbourhood would contribute towards the expense.

Mr. Hayes gave notice of a motion to the effect that the public market be closed in future at three o'clock, p.m., and that previous thereto it be cleared of hay, straw and other marketable produce.

Mr. Perrin gave notice that he would move that the commissioners erect two additional lamps—one at Roche's-lane, and the other at Neil's-lane, Glasthule.

The surveyor was instructed to report on the condition of the main sewer at Paradise-place, about which several complaints have been made.

A memorial was read from the inhabitants of Summer-hill, seeking for a main sewer in that locality, which was referred to the surveyor.

ON THE STRENGTH OF LONG PILLARS.

By B. B. STONEY, B.A.

[Read before the Royal Irish Academy, on Monday, June 28, 1862.]

AMONG the numerous difficulties encountered in designing large iron structures, such as railway girders or roofs of large span, none, perhaps, is of more importance, or requires greater skill to overcome, than the tendency of parts under compression to deflect beneath the pressure, and yield sideways, like a thin walking-cane, when the load is greater than it can support without bending.

To understand the matter clearly, we must recollect that the mode in which a pillar fails varies greatly, according as it is long or short in proportion to the diameter. A very short pillar—a cube, for instance—will bear a weight sufficient to splinter or crush it into powder; while a still shorter pillar—such as a penny, or other thin plate of metal—will bear an enormous weight, far exceeding that which the cube will sustain, the interior of the thin plate being prevented from escaping from beneath the pressure by the surrounding particles. We can thus conceive how stone or other materials in the centre of the globe withstand pressures that would crush them into powder at the surface, merely because there is no room for the particles to escape from the surrounding pressure.

It has been found by experiment* that the strength of short pillars of any given material, all having the same diameter, does not vary much, provided the length of the pillar is not less than one, and does not exceed four or five diameters; and the weight which will just crush a short pillar, one square inch in section, and whose length is not less than one or greater than five inches, is called the *crushing strength* of the material experimented upon. If the length of pillars never exceeded four or five diameters, all we need do to arrive at the strength of any given pillar would be to multiply its transverse area in square inches by the tabulated crushing strength of that particular material. It rarely happens however, that pillars are so short in proportion to their length; and hence we must seek some other rule for calculating their strength, when they fail, not by actual crushing, but by flexure.

If we could insure the line of thrust always coinciding with the axis of the pillar, then the amount of the material required to resist crushing merely would suffice, whatever might be the ratio of length to diameter. But practically it is impossible to command this, and a slight deviation in the direction of the thrust produces a corresponding tendency in the pillar to bend. With tension-rods, on the contrary, the greater the strain, the more closely will the rod assume a straight line, and, in designing their cross section, it is only necessary to allow so much material as will resist the tensile strain. This tendency to bend renders it necessary to construct long pillars, not merely with sufficient material to resist crushing, supposing them to fail from that alone, but also with such additional material or bracing as may effectually preserve them from yielding by flexure. It is evidently, therefore, of considerable importance that we should ascertain the laws determining the flexure of long pillars, which may be done as follows:—

Let the figure represent a pillar, very long in proportion to its breadth, and just on the point of breaking from flexure.

Let W = the deflecting weight;
 b = the breadth of pillar;
 d = its depth;
 l = its length;
 h = the central deflection;
 R = the radius of curvature;
 C = the resultant of all the longitudinal forces of compression on the concave side at the centre of the pillar;
 T = the resultant of all the longitudinal forces of tension on the convex side;
 δ = the distance between the centres of tension and compression.

The longitudinal forces acting at the centre of the pillar are three, viz., the weight W acting in the chord line of the curve, the resultant C acting at the centre of compression in the concave half, and the resultant T acting at the centre of tension in the convex half. Taking moments round either centre of strain, we have approximately

$$W = \frac{T\delta}{h} = \frac{C\delta}{h}, \dots \dots \dots \text{I.}$$

h being assumed equal to the distance between the chord-line and

either centre of strain, which is a close approximation when the pillar is very long in proportion to its width.*

The values of T or C in different pillars are proportional to the number of fibres subject to strain, that is to bd , and δ is obviously proportional to d ; so that we have the numerator on the right side of the equation proportional to bd^2 . Again, assuming that the deflection curve is a parabola, from which it can differ but slightly,† we have

$$h = \frac{l^2}{8R};$$

but so long as the strain per sectional unit in the extreme fibres, to which their change of length is proportional, is constant, R will vary in the same ratio as d ; and we have, therefore, h proportional to

$$\frac{l^2}{d}.$$

Whence, by substitution,

$$W = K \frac{bd^3}{l^2}, \dots \dots \dots \text{II.}$$

in which K is a constant depending on the elasticity of the material, which may be determined by experiment.

If the pillar be round, and if d represent the diameter,

$$W = K \frac{d^4}{l^2}, \dots \dots \dots \text{III.}$$

which proves that the strength of long round pillars varies as the 4th power of their diameter, divided by the square of the length; and the longer the pillar is in proportion to its diameter, the nearer will this formula represent the truth.

As all the longitudinal forces at the middle of the pillar balance, we have the following equation:—

$$C = T + W,$$

which enables us to predict how a long pillar will fail, whether by the convex side tearing asunder, or by the concave side crushing. A wrought iron pillar, for instance, may be expected to fail on the concave side, as its power to resist crushing is less than that to resist extension. A long pillar of cast iron, on the contrary, will probably fail by the convex side tearing asunder, as the compressive strength of cast iron greatly exceeds its tenacity. Further, the effective strength of wrought iron to resist crushing is about 12 tons per square inch, while the tensile strength of cast iron is nearly 7 tons per square inch; and hence we may conclude that the strength of long similar pillars of wrought and cast iron will be nearly as 12 to 7.

It is also worthy of note that, if the same pillar be bent in different degrees, T will vary as h , while δ remains constant; whence it follows from equation (I.) that W , the weight which keeps the pillar bent, is nearly the same whether the flexure be greater or less. This statement would be accurately true, were it not that equation (I.), on which it is founded, is only approximate. It will, however, agree very closely with experiment so long as h is considerable, that is, whenever the flexure is not slight. From this it follows, that any weight which will produce considerable flexure will be very near the breaking weight, as a trifling addition to it will bend the pillar very much more, and strain the fibres beyond what they can bear.

OUR RAILWAY.—The prospect of the early opening of the line to Castlebar is rather cheering, the permanent way from Clare to Balla, or rather to within four miles of Castlebar, being complete, and the remainder of the line nearly finished, the contractors only awaiting the arrival of rails, which have been detained by contrary winds, to finish the line. We are assured that the contractor's work will be complete by the end of this month, so that we may look forward to the line being capable of inspection by the middle of next month. We have heard several parties who have inspected the line from Clare to Castlebar, speak in the highest terms of the manner in which the works are being finished. The entrance to the station is in course of construction, and preparation made for the commencement of the bridge crossing the road, as the first work of the Westport extension; this is, of course, under the new contract. It is probable the Westport line will be set about at an early period, as the only delay is getting possession of the land, a large portion of which has been given over to the contractor — *Mayo Constitution*.

A stained glass memorial window has just been completed by Mr. William Pearson, of Talbot-street, Belfast, for Sir James M. Stronge, Bart., Tynan Abbey, to be placed in the East end of Tynan Church, in the memory of the late Lady Stronge.

* Mr. Hodgkinson's experiments show that this investigation is not applicable to cast iron pillars whose length is less than about 30 times their width: even with such short pillars it requires certain modifications, which he has deduced from experiment.

† The curve will probably be intermediate between a parabola and a circle, approaching the latter if the pillar taper towards the ends.

PRODUCTION OF CORK.*

In the "Mémoires de la Société de Physique" of Geneva is an interesting paper by M. Casimir de Candolle on the growth of cork. Although this useful substance exists in varying quantity in the bark of all phanerogamous plants, and in several cryptogamous, yet for commercial purposes it is wholly procured from two species of oak, *Quercus occidentalis*, growing in the south-west of France and in Portugal, and from *Quercus Suber* (the cork tree), growing in the south-east of France, in Italy, in Algeria, and in the isles of the Mediterranean. The acorns of the former species take two years to ripen. In 1859 M. C. de Candolle, while staying in Algeria, studied the development of the bark of the latter species. It is composed of four layers—the epidermis, the corky envelope, the cellular envelope, and the liber which covers the soft wood. These four parts increase independently of each other year by year. In the third or fourth year the epidermis, having attained the limits of its elasticity, splits longitudinally, and a marked change takes place in the corky envelope, which gradually takes up the appearance of true cork; new layers are produced, and the transformation of cellulose into cork steadily goes on. The cork thus naturally developed has no commercial value. It is termed "male," and the first act (*demasclage*) of the cultivator is to separate it from the trunk, which thus leaves exposed the liber, termed "mother." The tree is then left to itself, and the cork begins to grow again, while the sap is flowing, in consequence of the exposure of the liber. If a trunk left in this state several months be cut down, in the section a ring of cork will be found formed in the interior of the "mother," at a variable distance from the surface of the trunk. All the exterior portion of the "mother" is dead, and splits as the tree grows, and the interior portion (new cork, termed "female") is developed. This "female" cork grows in the same manner as the "male," that is, by the addition of annual layers on the internal surface; but it is much finer and more elastic, and is the cork of commerce. These various stages of growth are exhibited in a series of beautiful plates. In the course of his researches M. de Candolle was led to observe the importance of the desiccation of the "mother," and to infer that, in proportion as this desiccation could be hastened, so much sooner would fresh layers of cork be produced. This idea he found to be correct. He observed several trees in which fires, after having charred the male or female cork, had determined the formation of a layer of female cork in the interior of the "mother." He states that he has seen a specimen composed of three layers of "female" cork, separated by little zones from the "mother," the fourth layer, which enveloped the whole, having disappeared in consequence of the fire. The thickness of these zones, increased by the application of boiling water, does not diminish by cooling. Other peculiarities of this remarkable substance are noted in the memoir.

ECOLE DES BEAUX ARTS, PARIS.

An adjudication of the three prizes offered for the current year by this institute to its students took place on Saturday week, and resulted as follows:—

1st. "Grand Prix"	...	...	M. Chabrol.
Second Grand Prix	...	...	M. Brune.
2nd. Second	...	...	M. Dutet.

The subject treated was "a design for a Palace for the Governor-General of Algeria, and for the temporary residence of the Sovereign;" the style required to be adopted was a composition of the principles upon which were created the architectural forms of the time of Pericles, Augustus, and Leo X.; and the programme embraced a palace (on side of a hill), a large public square, a triumphal arch with martial trophies, and leading to a court containing government offices, governor's and officials' residences, &c., &c., and terraces and pavilions, with cascades and pleasure gardens. Eight students qualified to compete were at first nominated, but the father of M. Chabrol, an influential Academician, induced a change in the list, which subsequently resulted in the son's favour. Not having seen the drawings, we are unable to judge of the respective merits of the candidates; but a professional contemporary, on whose authority we would rely, says the judgment was unsatisfactory, and that the design of M. Chabrol is the poorest of all both in idea and study.

MINING IN THE COUNTY OF LEITRIM.

A PAPER thus entitled and read by Mr. H. T. James at the South Wales Institute of Civil Engineers, stated that some beds of coal and iron-stone had been discovered in various parts of Ireland, and if Irish capitalists had possessed only a moderate amount of enterprise they would long ago have turned it into account. It

was generally asserted that the coal beds of Ireland were very shallow, but the writer doubted whether any reliance could be placed upon that statement. A bed of coal not exceeding two feet in thickness had been worked for some time on the brow of a mountain near Lough Allen, and the coal was found to be highly bituminous, well adapted for domestic purposes, the only drawback being a thin layer of shale, which was very apt to stick to it, and prevent its sale in very large quantities. It is, however, worked cheaply, and in winter 10s. per ton was obtained for it, and in summer 6s. or 7s. per ton. The other seams were very liable to be molested by faults. When the former Crevalle Iron Company was in existence, they laid out a great deal of capital in Leitrim to produce a coke which may be successfully used for smelting purposes. A second (the present) Crevalle Iron Company was employed in working a very rare deposit of ironstone about four miles north of Drumkeerin, with the view of discovering whether iron could be manufactured by the use of peat charcoal as fuel. The ground being exceedingly soft, no blasting was required.

THE PRINCE OF WALES AND THE INTERNATIONAL EXHIBITION.

It is announced that his Royal highness the Prince of Wales has, with the approbation of her Majesty, undertaken to distribute the medals and certificates of honorable mention at a state ceremonial early in 1863, after the building has been cleared. It has not yet transpired from authentic sources that there will be any formality observed, at the closing, or any dignities conferred; though "rumour" anticipates various baronetcies, knighthoods, &c., &c. The governments of the present day are, however, more prudent and consistent in this latter regard than heretofore, and the honour is, therefore, more highly appreciated when bestowed.

NEW PATENTS.

LIST of Letters Patent which passed the Great Seal in September, 1862; Byrne and Lambert, patent agents, 4, Lower Ormond-quay, Dublin:—

J. Wadsworth, for "Improvements in the construction of moveable or adjustable heels for boots and shoes."

A. S. Stoker and another, for "Improvements in the manufacture and construction of metal boot heels and tips and horses shoes."

W. Bowser, for "Improvements in ships' fire-hearth or boiling and cooking apparatus."

R. Gladstone, for "Certain improvements in tilting or tipping waggons."

J. Newall, for "Improvements in supplying gas to railway carriages, stations, steam boats and other vessels, omnibuses, at any required pressure, and in apparatus connected therewith."

T. Fountaway, for "Improvements in smoke consuming furnaces."

B. Fleet, for "Improvements in apparatus for manufacturing and bottling soda water."

W. Kemp, for "Improvements in the manufacture of silk pile velvet."

J. F. Woodall, for "Improvements in ventilating carriages for common roads."

F. P. Warren, for "Improvements in apparatus for steering sea-going vessels."

P. Boisset and another, for "Improvements in the manufacture of boots and shoes."

J. J. H. Gebhardt, for "An improved fastening for bags, purses, and other similar articles."

CHURCH OF ST. LAURENCE O'TOOLE.—Owing to the exertions of the Rev. Dr. Farrington, P.P., assisted by his zealous building committee, the tower and spire of the church are rapidly progressing towards completion, in a style which reflects much credit on the eminent contractors, Messrs. Murphy and Son, the restorers of St. Patrick's Cathedral. The bell chamber reaching to the base of the spire is nearly completed, and contains twelve lofty lancet openings, crowned with canopies and finials, and surmounted by corbel tables and gables pierced with trefoil openings. The spire will be what is usually denominated "broached," and will be ornamented with two tiers of single and coupled lancet windows surmounted by canopies. The entire structure will rise to the height of nearly 200 feet from the surface, and will be crowned by a large mediæval cross in gilt bronze. The general style of the belfry and spire will be somewhat in advance of the style of the church, and will have many features in common with the much admired spire of St. Peter's, Phibsboro', which was also designed by the same architect, Mr. Bourke. The spire of St. Laurence's will form a prominent object at the east end of the city, and will be plainly discerned from the entrance of the bay and the adjoining strands.—*Freeman*.

* From the *Building News*, September 26th.

Correspondence.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—Permit me to make a few remarks upon the new propelling power alluded to in your number of October first, said to be recently discovered.

In 1848-9 Messrs. Seward and Co., the engineers of Blackwall, built and fitted a vessel similarly in all respects to that which you describe on the Scheldt. The vessel was called the Water Sprite; 92 feet long, and twelve feet broad, she had two wells larboard and starboard a little aft from midship, fitted with valves, &c., in connection with the engine. At the sides of the vessel, and near the stern, were two pipes, set obliquely, about seven inches in diameter; these were connected with the wells, and the whole was worked by a 20 horse-power engine; at each stroke the water was ejected with great force through the seven-inch pipes, and a result arrived at of from 8 to 10 miles an hour; there was not, however, any control over the vessel, and when 'way' was on her, I have on more than one occasion known her to be run 'head on' to a nice soft mud bank of the Thames, to prevent accident. The firm I mention tried all that scientific skill and abundant means could suggest, but in the end gave it up as a failure, and I subsequently purchased the vessel and converted her into a paddle-boat.

There is one positive impediment to the success of this principle, viz., the force with which the water is ejected, drives it in a straight line through the body of water into which it is driven, without the least resistance, and consequently without producing any propelling result, the ejected column being the lever, the body into which it is ejected the fulcrum. But where would the advantage be of such a mode of work? It would take as much steam power to eject and pump in water, as to drive a screw or paddle-wheels.

My motive in addressing you is only to show that it is not *new*, should it ever be good. M. Brunet of the firm of Seward and Co., of Blackwall, is the first discoverer. I remain Sir, yours obediently,
J. P. LEE.

ST. ANDREW'S CHURCH COMPETITION.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—The above heading, although savouring of things past, will perhaps engage your attention sufficiently to cause your granting this communication a place in your columns. It is indeed an unenviable task to call to account a number of gentlemen, who, acting as a committee, have done what, I am well aware, each of them *individually* would spurn—unenviable from the *animus* that I should be likely to engender against me were my name subscribed to this letter—but also from the unpleasant duty it imposes on one who has indeed—like most architects—little inclination to rush into print, and little time to spare for much unpleasant duty were the inclination ever so great; but, sir, the time has now come when it is absolutely imperative on all the profession to come forward and crush a system of spoliation inflicted on them by public committees, calling for and obtaining designs "under false pretences;" if a poor creature that begs from door to door obtain one shilling under false pretences, imprisonment is the reward: if a committee of gentlemen obtain from ten to twenty sets of designs, value from fifty pounds up to two hundred and fifty, they are thanked and applauded as public benefactors. If any member of the community entered the business house of any one on that committee, and obtained, by misrepresentations, goods to the amount of sixpence, we can easily imagine the result. But we, architects, are easy victims to the shadows held out dishonestly to them. Should this be the case especially where the church is concerned? I should certainly say—no! and, I am sure, that the two respected clergymen who occupied the pulpit of St. Andrew's had no hand in this unseemly affair. A short statement of the details (although at the time given in the DUBLIN BUILDER) will refresh the memories of your numerous readers—Architects were invited to submit designs for a new Church for St. Andrew's Parish, the terms (which I have) were printed and published, were most stringent, and, in fact, made it a *sine qua non* that the designs sent in should be carried out for—at the outside—five per cent. over £10,000, otherwise the plans were to be rejected, even at the eleventh hour, without any claim for remuneration; the drawings were exhibited, when lo! a cathedral-like pile graced the walls to which, in truth, no modest ten thousand pounds conception in the room could compare; no tame spire or unpretending early decorated church would satiate the vanity of the committee; they had set their heart on the cloistered phantom of £17,000, and then and there adopted it, well knowing it could not be done for the stipulated sum, and "chasseed" the other honest unfortunates with the most incalculable amount of *sang froid*. The walls of every counting and banking house in Dublin were graced with the photographs of the gorgeous pile, but the estimates, when obtained, were some thousands over the mark; and now, sir, after this design has been lopped of "its fair pro-

portions," denuded of its illusive decorations, and rendered as bald as common decency would admit of, an important member of the committee coolly announces in the public papers that it is to cost £12,500! a cool piece of effrontery of self and brother committee men. However, sir, this is the first authenticated announcement of the breach of good faith, and this letter is intended to take up the gauntlet thrown down by Mr. Acheson who signs the advertisement. If there be one spark of feeling amongst the architects who competed, they will not allow this gross injustice to go unpunished. I shall begin by placing in the hands of any solicitor agreed on by any three other competitors whose plans could be carried out for £10,000, the sum of £25 in order to form a fund to try this question with the committee of St. Andrew's Church; if defeated, I shall bear my share of the costs; I have little doubt, however, as to the result. Twelve Dublin jurymen would not sanction such a glaring injustice. I hope to publish in your next the opinion of an eminent Q.C. on the subject, when, I trust, matters shall have assumed such a shape as will enable the architects of Dublin to show the St. Andrew's Church Committee that they cannot act with impunity, and to overthrow a most heartless, not to say dishonest, style of obtaining plans "under false pretences."

Hoping the cause will be sufficient apology for the length of my letter, I am, Sir, yours obediently,
Oct. 18th, 1862.

A COMPETITOR.

THE WINTER GARDEN.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—In your critique upon the designs for the above building, a gross error occurs in the description of that lettered A (motto—*Dum spiro spero*). You say it is 90 feet wide! had you measured the drawings you would have found the building proper to be 200 feet wide; you also say it is less comprehensive than the majority of the others submitted. Granted, but permit me to state that it represents all that was asked for, and can, with some improvements, be worked out for the sum named, £35,000.

You will oblige me by correcting the error, no doubt unintentionally made in your number of October 1st.

DUM SPIRO SPERO.

[Since the receipt of this letter we re-examined the design in question, and find the breadth (or "width") of the building, except where transepts occur, to be about 90 feet, as stated. We cannot see to what the dimension of 200 feet applies, or on what point the author takes exception to our statement.]

Notes of New Works.

The new Herbert General Military Hospital, now building for the government on Kidbrook Common, by Messrs. Mayers of Lambeth, at a cost of £160,000, and which was commenced twelve months since, is now ready for roofing in, and will be completed within the time allowed by the terms of the contract. The building stands upon seven acres of land.

A very handsome Roman Catholic Chapel is now in course of erection at Butlersbridge, a small village within three miles of Cavan. It is in the style of Gothic architecture termed "Old English," the popularity of which edifices has greatly increased within the passed few years. The funds for the erection of the building were principally subscribed and collected by the late John Reilly and his son, Thomas Reilly, Esq., Derragarra House, his wife, and sister.

A new chapel is to be built at the convent of Our Lady of Refuge, Drumcondra, according to plans by Mr. J. J. McCarthy, Architect. A laundry is to be built in connection with the South Dublin Union workhouse. Mr. William Murray, architect.

It is stated that the Liverpool and Birkenhead Dock Commissioners have sanctioned an expenditure of £6,000 on works for the storage of petroleum, and that in case of necessity they will be extended so as to cost £40,000.

The new hotel (previously described in the DUBLIN BUILDER) which has been erected by the Earl of Clancarty at the Ballinasloe railway station, attracted much attention during the fair. It is now nearly completed, and the handsome appearance of the structure reflects much credit on the architect by whom it was designed, James F. Kempster, Esq., and also the contractors, Messrs. Page and Clarke.—*Western Star*.

Messrs. O'Connor are engaged upon the windows for St. Anne's Church, Dublin, which is an Italian building; their designs have been adopted for a memorial window, to be erected to the late James William Cusack, M.D., in the apse, the subjects being the three miracles of raising the dead by our Lord, St. Peter raising Dorcas, and above all these, our Lord's own Resurrection, and for a memorial window in the body of the church, representing Faith, Hope, and Charity.

Miscellaneous.

WORKING EXPENSES OF RAILWAYS.—The whole sum paid as working expenses on railways in the United Kingdom amounted last year to £18,848,337, as compared with £13,187,868 in 1860. The receipts were £28,534,633 last year, as compared with £27,748,486 in 1860; and the proportion of working expenses to revenue rose consequently to 48 per cent. last year, as compared with 47 per cent. in 1860, the nett receipts having only advanced from £14,561,118 in 1860, to £14,961,296 in 1861. The proportion of working expenses to revenue was in England and Wales last year 49 per cent., as compared with 48 per cent. in 1860; in Scotland, 45 per cent., as compared with 44 per cent. in 1860; and in Ireland, 44 per cent., as compared with 45 per cent. in 1860. Thus while the railway management of England, Wales, and Scotland appears to have retrograded, that of Ireland has improved. Taking the United Kingdom generally, the charge for maintenance of way amounted last year to 18·37 per cent. of the whole working expenses, as compared with 18·48 per cent. in 1860; the charge for locomotive power was 28·44 per cent. of the whole working expenses last year, as compared with 28·83 per cent. in 1860; the charge for repairs and renewals of plant was last year 8·94 per cent. of the whole working expenses, as compared with 8·49 per cent. in 1860; the traffic charges (coaching and merchandise) were 27·94 per cent. of the whole working expenses last year, as compared with 28·05 per cent. in 1860; the charge for rates and taxes was 3·94 per cent. of the whole working expenses of last year, as compared with 3·93 per cent. in 1860; the charge for Government duty was 2·62 per cent. of the whole working expenses last year, as compared with 2·75 per cent. in 1860; the charge for compensation for injuries to passengers was 0·98 per cent. of the whole working expenses last year, as compared with 1·37 per cent. in 1860; the charge for compensation for damage and loss of goods was 0·44 per cent. of the whole working expenses last year (in 1860 no similar analysis appears to have been instituted); the legal and parliamentary expenses were 1·58 per cent. of the whole working expenses last year (in 1860 no similar analysis appears to have been instituted); and the miscellaneous charges not otherwise particularised were 6·75 per cent. of the working expenses last year, as compared with 8·10 per cent. in 1860.

THE POULTRY HOUSE.—It is highly necessary that a good substantial house be provided where poultry are kept extensively, and by a little arrangement in its construction it is possible to make it much more convenient, and become of far greater utility than when built without skill or design. The walls should be of brick, and when expense is not an object built hollow to ensure dryness. The floor should be paved. There should be a lath and plaster ceiling and the walls and ceiling should frequently be whitewashed. Warmth and cleanliness go far to prevent disease, and consequently there cannot be too much attention bestowed on all those little matters which tend to promote these essential objects. It is highly necessary, likewise, that the arrangement of the house should conduce to the comfort and perfect ease of the feathered inhabitants. For this purpose we would have it divided into three compartments; a large one for laying and roosting, and two smaller ones for hatching and rearing chickens. In the large room we would place roosting frames on the floor in the front, high or low, according to the nature of the breed, for it must be remembered that Cochins are not good climbers. Behind these we would have a tier of boxes for nests, erected so that a passage should run betwixt the back of the nests and the wall. Moveable slides should shut off the nests from the passage, formed so as to remove easily for the object of taking out the eggs. It will be perceived that, according to this arrangement, the front part of the room, which the fowls inhabit, would never require to be entered, except for the purpose of cleaning it out. By a side door the passage might be secretly entered, and the eggs removed daily without the slightest disturbance to the birds within, who would probably be disposed to forsake the poultry house for laying purposes, but for this precautionary measure.—*Thorley's Almanack.*

The Belfast Fund to erect a memorial to the late Prince Consort amounts to nearly £2,000. At the meeting of the committee, on Thursday week, a plan was submitted of a beautiful clock tower, which could be erected for £1,800.

ARMAGH CATHEDRAL.—The committee appointed by the clergy of the diocese for the completion of the "memorial" to the late Primate have only one alternative left, viz., the erection of an obituary window in the Armagh Cathedral, as the Beresford family have determined to have a splendid marble monument (recumbent) of the best workmanship and design. The great window in the south transept is alone suited to the objects of the "Memorial" Committee, and to obviate the darkness which must ensue from the erection of this memorial, the Dean and Chapter will probably reopen the two windows in this part of the Cathedral—East and West—which were closed since the reconstruction of the of the building in 1843.—*Newry Telegraph,*

SELF-HELP.—It is every man's duty to discipline and guide himself, with God's help, according to his responsibilities and the faculties he is endowed with. Guided by the good example and good works of others, we must yet rely mainly upon our own inward efforts, and build upon our own foundations.

TRADE IN LIMERICK.—The largest arrival of vessels, grain laden that has taken place in the memory of the oldest person occurred within this month at Queenstown. Our timber market is likely to be well stocked. In addition to our former annual supply by our local timber merchants, we find a large vessel, nearly 800 tons register, the *Inchiquin*, arrived here from Quebec, following a large vessel with Baltic timber. Those vessels belong to the extensive and respectable firm of Messrs. John Martin and Sons, of Dublin; and their cargoes are imported by the Limerick Wood Company, lately established here, and under the management of our valued fellow citizens, Messrs. Ryan, Brothers, and Co. Coals are also likely to be plentiful; large arrivals have taken place; more are on passage.—*Limerick Chronicle.*

THREATENING AN EMPLOYER.—A man named Edward Connor was charged at Capel-street office, by Mr. Michael Meade, builder, Great Brunswick-street, under the following circumstances:

Mr. Meade—The prisoner was a labourer in my employment. Yesterday evening I paid him his wages and discharged him. This morning he came to the Four Courts, where I am carrying on extensive works, and followed me about the place, saying he would show me what he could do to me. Not one of the eighty labourers at work would go for a constable, and it was only after an hour and a-half's annoyance from him that I was able to give him into custody. The prisoner also went into my office and took possession of dockets of stones delivered to me, which are my property.

The prisoner—Mr. Meade, don't wrong your conscience. I wonder a man of your ability would do so.

Mr. O'Donnell asked Mr. Meade was he apprehensive of violence from the prisoner?

Mr. Meade said he would rather not be near him.

Mr. O'Donnell said he would remand the case for the present.

LECTURES FOR THE WORKING CLASSES.—On Thursday evening the first of a series of popular lectures was delivered by Mr. J. Dowling, (Science and Art Department) at the House-painters Trade Association Rooms, 48, South King-street. The attendance was numerous, and all present seemed to take much interest in the observations of the lecturer, who took "Chemistry" as his subject for the course which he is to deliver.

Messrs. O'Connor have just completed the filling of the east end windows of St. John's R. C. Church, Tralee, with very bold and rich stained glass. The great window over the high altar, consisting of seven main lights and flowing tracery, has for its design, life-size figures of St. John the Baptist and our Lord in glory, surrounded by the twelve apostles; in the tracery the Annunciation, and groups of angels in joy and adoration. The window north of this is a special public memorial to the late Dean. It is of three lights, the main subject, the "Resurrection" of our Lord, running through them, and at the base groups representing the Dean correctly vested. The large cinque foil tracery apex represents the Saviour in Heaven, receiving the Dean, whose body is borne towards Him by angels. In the south window the main subject is the Ascension, and at the base groups of our Lord appearing to St. Mary Magdalene in the garden, our Lord with the disciples at Emmaus, and the charge to St. Peter. The large cinque foil has the assumption of the Virgin for its subject.

Let it be your first care, not to be in any man's debt. Resolve not to be poor; whatever you have spend less. Poverty is a great enemy to human happiness; it certainly destroys liberty, and it makes some virtues impracticable and others extremely difficult.—*Dr. Johnson.*

Henry T. Hope, Esq., proprietor of the Castleblaney Estate, in addition to the generous assistance he has given towards the rebuilding and completion of the parish church, has presented to the congregation a handsome and suitable service of communion plate, of mediæval pattern, in keeping with the beautiful Gothic church recently erected at Castleblaney, by the Ecclesiastical Commissioners for Ireland.—*Dublin Evening Mail.*

Some citizens of Milan have presented Earl Russell with a testimonial of their gratitude for his services to Italy. The sculptor Carlo Romano has introduced the abstract idea of faith in Italian unity in the shape of a young lady seated on a rock. The gift has been accepted by Lord Russell in a handsome letter.

NOTICE.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MABBOT-STREET." All other Communications should be addressed to the Editor, 26, LOWER GARDINER-STREET.

Building Materials.

SAWING, PLANING, & MOULDING MILLS,
GREAT BRUNSWICK-STREET.

MICHAEL MEADE

OFFERS for Sale a large and well-selected stock of Timber and Deals, Slates, Sewer Pipes, Tiles, Plastering and Slatting Laths, &c. Has always on hand—Skirting, Mouldings, and Architraves of all patterns, prepared Flooring, &c. Makes to order, by Patent Steam Machinery, Doors, Windows, Shutters, Staircases, Green Houses, &c. First class Workmen, selected from the Regular Carpenters of the City, only employed. None but Best Seasoned Timber used. Goods forwarded to all parts of the Kingdom.

JOSEPH KELLY, CITY SAW MILLS,

68 and 67, THOMAS-STREET, has for sale—

Timber—	Fire Bricks,
Deals, St John's	Oven Tiles,
Deals, Archangel	Kiln Tiles,
Slates,	Pipes, all kinds,
Plastering Laths,	Plaster of Paris,
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Doors, Sashes, Staircases, Green Houses, Architraves, Skirtings, Prepped. Flooring (seand.)

At Reduced Rates.

Dublin, 1st February, 1862.

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STORES, 150, 151, & 152, TOWNSEND-STREET, 14 & 15, SHAW-STREET; 21 & 22, LUKE-ST., and 7, LIME STREET (off Sir John's quay).

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And CHIP-BOX FACTORY, DONNYBROOK, Agent to Messrs. FERGUSON, MILLER, & Co., Fire Clay Works, Heathfield, Glasgow.

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TO ARCHITECTS AND BUILDERS.

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A. AND N. HAMMOND beg to call the attention of the Trade to their establishment, from which Cut Stonework is delivered for Dublin free on waggon at Amlens-street Terminus, Dublin and Drogheda Railway. The above Quarries are situated on the south side of the River Boyne, within 2½ miles of the Drogheda Station.

For Prices apply at the Quarries, or at their Office, John-street, Drogheda, and 28, Amlens street, Dublin.

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L. G. and Co., will be happy to furnish Architects, Builders, and others with list of prices at the Quarries, free on board, and freight to any port in the kingdom. All orders promptly and carefully shipped.

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JOSEPH KELLY has for Sale 600 TONS of BANGOR SLATES at low rates. CITY SAW MILLS, DUBLIN, 66, THOMAS-ST.

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R. H. MONSELL, Manager.

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A variety of CISTERNs on hands, and made to order.

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Nos. 17, 18, and 34, POOLBEG-ST., DUBLIN.

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The Subscriber has in stock a large quantity, made by the Best Manufacturers, which will be sold at a considerable reduction from former rates.

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PICTOR AND SON, QUARRY PRO-

PRIESTS AND STONE MERCHANTS, BATH. List of Prices of Box Ground, and Corsham Down Stone (loaded in railway trucks at Box or Corsham Station), also cost of transit to all parts of the kingdom, forwarded on application to Bath Freestone Works, Box, near Chippenham, Wilts. Dressings both plain and ornamental prepared ready for fixing. Vases, Tomba, Chimney-pieces, &c.

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ESTABLISHED 1769.

The Proprietors keep in Stock every variety of Tool required by the various Trades, or for the use of Amateurs.

Flooring Cramps and Lift Jacks lent out on hire at a moderate rate.

Grindstones, from 4 to 36 inches diameter, mounted to order.

N.B.—No connexion with any other house.

A liberal Discount allowed.

DEALS, BANGOR SLATES, &c.

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offer for Sale large importations of

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They invite the attention of Builders of DWELLING & FARM HOUSES, COTTAGES, &c., to the advantage of making selections from a first-class Stock, at rates really low. In the Slate Department will be found upwards of 600 Tons of the finest qualities of

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also Roofing and Flooring Tiles, Fire Bricks, &c.

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Correct specifications of quantities required for Flooring, Roofing, and Slatting, with a standard list of prices, framed on the closest calculation. For particulars apply to R. E. GRANDY, Manager.

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WILLIAM GREEN, formerly with

Messrs. Lane and Lewis, Sculptors, of Birmingham, and late Foreman to Mr. H. Lane, begs to inform Architects and Builders that he executes, on the most liberal terms, Altars, Reredoses, Pulpits, Fonta, Chimney-pieces, Tomba, Monuments, &c., in Marble and Stone, at the lowest price compatible with good workmanship.

All Orders executed with promptness and personal attention.

TO ARCHITECTS AND GENTLEMEN HAVING MANSIONS IN COURSE OF ERECTION.

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Beg leave to state that they are prepared to undertake Contracts in the above line. Ornaments for Cornices and Centre Pieces for Ceilings supplied. Fronts of Houses done in Portland or Roman Cement at Eldest Cost. Country Orders strictly attended to, and first class workmen sent to all parts of the Country.

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Plaster of Paris.	John's Patent Stucco
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PAVEMENTS.—**H. SIBTHORPE AND SON,**

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Various specimens may be seen at their Warerooms,

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The Dublin Builder.

VOL. IV.—No. 69.

PROJECTS ON THE TAPIS.

OUR city is rife just now with projects of a national, a utilitarian, and an artistic character. Of public monuments no less than four are under consideration in various stages of maturity, viz., the *Albert*, the *O'Connell*, the *Goldsmith*, the *Edmund Burke*. Upwards of *six thousand pounds* have been subscribed by the loyal Irish subjects of the Queen of Great Britain for the substantial perpetuation of the memory of her Majesty's lamented deceased Consort, and this sum is designed to be expended, partly in the erection of a handsome monument, and partly in the securing of a "People's Park" as an accessory thereto, by the conversion into same of a fashionable square—St. Stephen's-green—hitherto inaccessible to the general public. Thanks to the unostentatious but devoted energy and high influence of our worthy Lord Mayor, Denis Moylan, ably assisted by Mr. Justice Fitzgerald and many noblemen and gentlemen, this is almost on the eve of accomplishment; and, probably, before his lordship's year of office expires, we shall have the pleasure to record the laying of the first stone. To the memory of the Irish "Demosthenes," the Irish "Solon," the Irish "Curius" (*tria juncta in uno*), combined O'CONNELL—he whose masterly forensic eloquence made both British and Irish Houses of Parliament tremble; whose profound legal attainments constituted him "a pillar of the law" itself; whose national devotion induced him to throw into the forum of public life all that was dear to him, to secure emancipation and other great measures for his countrymen—another monumental structure is to be raised, and the site has already been granted by the Corporation, who—in all honour be it said—were unanimous to a man, even the most strenuous political opponents of the renowned deceased, in its allotment. It is not only not out of place here, but it would be a gross dereliction of duty were we not to pay special tribute to the originator of this most laudable movement, who, by his extraordinary energy in this as in any matter with which he associates himself, by his ability and tact, by his worth and integrity, has won the admiration of all, not excepting those who may disagree with him on public questions. Dr. Gray, J.P., T.C., the long-tried friend, the fellow-labourer, the fellow-martyr, and, ultimately, the fellow-victor—on the successful prosecution of appeal to the Lords—of O'Connell, finding a few short months ago that the proposed monument to the Liberator, at Ennis, was incomplete, and, in fact, the statue in durance vile for a small sum due to the sculptor, determined to remove the difficulty, and procure the money requisite. With such a man, determination to effect any object is but a prelude to certain success, and so it proved; for in an almost inconceivably short time the sum was procured, and the sculptor paid.

Not even then "resting on his oars" as others might and would have done, the indefatigable doctor set about another task of ten times the magnitude; nothing short of obtaining through the same medium, viz., the public purse, a sum of *two thousand pounds* for the erection of a national monument in the metropolis. Would-be wisacres shook their heads sceptically, and pooh-poohed the idea as impracticable after such a lapse of time; but nothing daunted, and working might and main, the doctor pushed ahead, and each day sees him nearer and nearer the wished-for goal. The first thousand was lodged several days ago, and the second is sure speedily to follow; the total amount received up to yesterday being £1518 4s. 4d! If another and another thousand were required, it would be as sure.

Again, when referring to the great scheme of the improved water-works—the first step towards the practical accomplishment of which will be inaugurated in a few days—we must connect in an especial manner as the originator and successful maturer of the undertaking, after a protracted and determined formidable opposition, the name of Dr. Gray, of whose exertions and ability directed to secure that most desired end we have before so often spoken, that it would be

superfluous to dwell at length upon them now. If to the learned professions of medicine and law, united in the Doctor, were added that of engineering, we feel assured that in practice he would attain one of the highest positions. A word now with our able and zealous friend, Alderman Reynolds, about his cherished project of rebuilding Carlisle Bridge. Is it not already far beyond the time when the competing engineers at least should reasonably expect some decision upon the merits of their plans, many of which were prepared at vast labour and expense? How long are they to remain as they are now in a store under lock and key? or when will it suit the convenience of the gentlemen who undertook the office of referees to examine them, and let them be returned to their authors? We have had a host of letters on this subject, and hope it will not be necessary to refer to it again, until after the decision. The Winter Garden engrosses public attention, and in our next we shall have something definite to say about it.

DUBLIN NUISANCES.

FORTUNATELY we have not been visited with an epidemic for some years. Should we, however, be afflicted again by such a calamity, there are many spots in this beautiful city of Dublin of which it will take possession, and from them deal forth death and destruction among the more wealthy who inhabit their neighbourhood. In these days of sanitary reform, when *experience* has taught us where cholera and fever love to riot, and what kind of atmosphere they like, and on what food they thrive and flourish, it is a disgrace to any city to have anywhere, but particularly in the vicinity of its principal thoroughfares, perfect sinks of filth, exhaling noxious gases, which must render unhealthy the people doomed to live in them, and which sicken by their offensive odour the casual passer by. There surely must be some power to compel cleanliness, and to remedy such nuisances. The fault does *not* lie with the poor inhabitants in all cases, though it may in some. The authorities are to blame in not seeing that the usual means of keeping houses and streets clean and decent are supplied to the people. As an illustration, take Potter's Alley, off Marlborough-street; all the filth from the houses is daily thrown into the street; animal and vegetable refuse lie rotting in the very centre of a dense population, within one minute's walk of Sackville-street. What are the inhabitants to do? There is no effectual drainage; and however well they may be disposed towards cleanliness, they cannot get a drop of water nearer than Kelly's court, Marlborough-street (a private supply), or from the tap in the Dublin Glas Works (a private supply also). No stranger ever passes through this street without expressing his astonishment that such a nuisance should be allowed in the very centre of so fine a city as Dublin. No one blames those who are the greatest sufferers from it, but all condemn the conduct of those whose duty it is to look after the health of the people. How *often* and how *long* shall it be our duty to direct attention to such notorious facts? We cannot "take the bull by the horns;" we show those that *can*, how they can do it successfully, but evidently they *will* not.

MR. BARFF'S STONE PRESERVATION PROCESS.

THE competing patentees of this date is Mr. F. S. Barff; and as we (*Building News*) cannot now afford space to enter into details of this process, to do it the justice it demands, we must notice it in our next number, merely stating here that it has received honorable mention from the jury, in Class 2, section A, of the International Exhibition, and quoting a paragraph from our contemporary, 'The Chemical News,' on the subject, adding that we quite coincide with the opinions expressed therein; and would recommend, to those interested in this subject, a consideration of the process, which we shall lay before our readers in our next.

"In 471, Messrs. Bartlett & Co. exhibit soluble silicates, artificial stones, and preparations illustrating their stone preserving process. The last is sufficiently interesting and novel to demand particular notice. All our readers know that, under ordinary circumstances, a solution of alumina and potash and a solution of silicate of potash when mixed together would give an immediate precipitate. Mr. Barff, however, has made the curious discovery that there are degrees in strength and of alkalinity at which the mixed solutions give no immediate precipitate, but in time dry up to a solid, opaque, glassy mass, which is capable of resisting the action of hot and cold water, and also of hydrochloric and sulphuric acids. There seems to be formed, in fact, a sort of artificial felspar, in which all the solid ingredients of the solutions unite. The method of applying such a solution to a building is simple enough; it has only to be paid on like paint or an ordinary wash, and, heavy rain not interfering, it soon dries up, and coats the building with a solid, glassy covering, capable, no doubt, of resisting atmospheric influences for any number of years."

STEPHEN'S GREEN.

Among the other acts of mal-administration of the old Corporation, the citizens of Dublin of the present time may deplore the leasing, to an irresponsible Board of Commissioners, of this fine open space, seemingly appointed by nature as one of the lungs of the densely populated region adjacent.

This lease is now the chief obstacle to the realization of the benevolent project of converting Stephen's-green into a Public Park or Garden. The rent, £276 18s. 6d. a-year, has been pledged by the Corporation as part of the security to the city creditors, and nothing but an act of parliament can at once cancel this lease, restore the property to the corporation, and satisfy the just rights of the public creditor. Such an act of parliament can only be procured by the corporation paying off so much, at least, of their bonds or debentures as would represent a 25 years' rental of Stephen's-green, or nearly £7,000.

Mr. G. W. Maunsell, in his ably-written pamphlet, suggests that the corporation should vote the greater part of this sum out of the Borough funds, but such an application of those funds can only be made under the authority of an act of parliament, and as the measure is sure to be strongly opposed by the Stephen's-green commissioners and others, a very strong case must be made out, and a very decided expression of public opinion elicited in its favor ere we can hope for success.

The enlightened and truly patriotic movement of the Prince Consort Memorial Committee greatly facilitates a solution of the difficulty. The large funds at their disposal will suffice to pay off the debenture debts due by the Stephen's-green Commissioners (£2,400) and after erecting a suitable statue to the Prince, leave sufficient for ornamenting the grounds, and placing new seats and gates.

We may say their action reduces the difficulty to the one connected with the corporation and its property; £7,000 or £5,000 is a large sum to ask parliament to virtually impose upon the rate-payers of Dublin, beside £200 or £400 a year more, for keeping the place in order, as a Public Park or Garden. Every citizen who values as beyond price, every measure such as this, for promoting the progress of our people has it now in his power to practically give effect to his sympathies and noble impulses. Let parliament, when it comes to deal with this matter, have before it the fact that 3, 4, or 5,000 pounds sterling is guaranteed, voluntarily guaranteed on the part of the liberal and enlightened citizens of Dublin, in aid of the Borough fund, for the specific purpose of opening Stephen's-green free to the public of all classes. With such a practical testimony in favor of the measure, parliament will not hesitate to decide against the opposition of "vested interests" and illiberality.

PRESERVATION OF FOOD BY MEANS OF ICE.

THAT a sufficient reduction of temperature in connexion with proper receptacles would enable all sorts of food-manufacturers, such as graziers and butchers, poulterers, dairymen, horticulturists, and many others, to store and keep fresh immense quantities of food; killing animal food, and plucking or otherwise reaping vegetable food at convenience, or when ready for use; one cannot doubt. And as to the question how long such articles, especially flesh or animal food of all sorts, could thus be kept, we may reply that really there appears to be scarcely any limit as to time; but, on a moderate calculation, say perhaps, 10,000 years! Indeed, we need not say *perhaps*, for this has actually been proved to be a fact; it is no mere supposition. Every one has heard of the extraordinary discovery, some years ago, of the carcass of an elephant, encased in an iceberg, off the northern coast of Siberia. This elephant was one of a peculiar and extinct breed, and covered with a thick coat of hair, as if fitted for precisely such a state of matters as that of which we lately spoke, with reference to the era of ice and drift. By geologists and others this elephant is believed to have lived in that very era; and we would suggest that it was provided with a coat of hair in order to adapt this tropical animal to a state of matters in which, as we have shown, winters of arctic intensity must have alternated with summers of tropical heat. Be that as it may, however, and seriously speaking, the flesh of this huge animal must have been preserved for thousands of years; and that it was preserved in, at least, an eatable state was evidenced by the fact that Russian dogs did not object to partake of it. Again, and coming down a few years in our estimation of time, a paragraph has quite recently been going the round of the papers in respect to certain food stores which were deposited in the arctic regions many years ago, and which were lately found in quite a fresh and good edible condition.

If, however, animal and vegetable food could only be preserved for a few months, it must be a most important manufacturing and commercial object, in many cases, to realize such a possibility. Thus crops of potatoes, apples, peaches, and a host of other vegetable matters could be preserved for market, and sold at leisure at a good

price, in place of being hurried to a sale for little or nothing ere they become rotten. Thus, too, when those immense shoals of herrings, mackerel, pilchards, and other fish come to hand, which are strewn upon our coasts occasionally in such profuse abundance that they cannot be sold for human food ere they rot, and are therefore carted off to the land for manure; municipal authorities and others being sometimes obliged to pay for the riddance; how easily could such windfalls be preserved for deliberate sale to the poor at a cheap rate, in large receptacles properly adjusted as to temperature by means of those steam and other ice machines now in use to a small extent among our butchers and others. In a similar way graziers and poulterers might kill their flocks by wholesale whenever they become fit for the table; so saving their feed while otherwise waiting alive for market; for that the cost of ice, manufactured by machines now in use, is small by comparison, there is good reason to believe.

It is to Admiral Elliot, however, and not to us, the public are indebted for the idea now broached. He proposes that corporations, extensive graziers, and others, as well as joint-stock companies, should realize his suggestion into extensive practice. He has investigated the subject with reference to the capabilities and cost of ice machines and ice manufacture, and he is convinced the idea is a practicable and profitable one. There seem to be several ice machines which promise well as an adjunct; and the admiral makes special mention of one invented by a Mr. James Harrison, of Australia, and constructed by Mr. D. Siebe, of London. An ice-safe, Jolley's patent, is already in use among butchers and others in London. He mentions that all the animal and vegetable food used in the Cunard line of steamers is preserved in ice-houses during the voyage; the butcher's meat, poultry, and game being all taken in carcass. We observe, too, from the *Mechanics' Magazine*, that another ice machine than those alluded to has been invented by a Mr. Leepine, of Paris. In short, the time seems now to have arrived when little or no difficulty will arise as to ice-manufacture on a large scale, should companies or others choose to work this important and promising idea of Admiral Elliot.

THE MANUFACTURE OF GLASS.

ALDERMAN Hartley of Sunderland, the eminent glass manufacturer, recently delivered a lecture at the Bishopwearmouth Young Men's Society, on the above subject, in which he glanced at the uses of glass, in its thousand-and-one forms, as applied by the architect, the chemist, the astronomer, the microscopist, the experimental philosopher, the horticulturist, the mariner, and the engineer, and its multifarious domestic uses. Upon the historical portion he dwelt briefly, but pointed out that, accepting the encyclopædic definition of glass, it existed anterior to man, as the gneiss rock testified, and in a crude state was early known to man. Not until the seventh century, however, was it introduced into England for glazing, when Benedict Biscop was the first to insert it in his magnificent monastic institution erected in Monkwearmouth. Its use continued to be confined for some centuries to large religious institutions. There was no authentic record when window glass was first made in England, but in 1557 it was manufactured in London, and soon following, on the Tyne. Plate glass was introduced in 1773, and sheet glass so late as 1832, but as yet the manufacture was in its infancy. For the purposes of the lecture he confined himself more particularly to three kinds of glass most common in use,—crown, sheet, and plate. The lecturer explained that the basis of all glass was sand mixed up with clay, lime, &c., to melt up which, it was necessary to use an alkali, upon which depended its transparency. The manufacture of this alkali from common salt was lucidly explained—the general composition of glass being about one half sand, one quarter lime, and the remaining quarter alkali. The mode of its fusing was shown by a model of a glass furnace and pots, the same (the lecturer said) from which the Prince of Wales was instructed by his tutor in the manufacture of glass. The mode of manufacturing crown glass was explained with specimens of various degrees of the manufacture, from the rough knob of molten metal, first gathered on the end of a blow-pipe, until by blowing and the adaptation of centrifugal and centripetal forces (simply illustrated) a large round sheet of old fashioned glass, with its accompanying bull's-eye in the middle, was turned out. Only 50 per cent of crown glass, as Alderman Hartley showed, was applicable to the purposes of commerce, the small sizes to which it could be cut, the waste, from the sides and centre being unsaleable, is so great as to render it extremely disadvantageous, and its manufacture was now becoming extinct. Upon the continent it has ceased to be manufactured, and while within his own memory 15 or 20 different firms manufactured it in England he expected to live to see it superseded altogether. The next, the cylindrical process, or sheet glass, required more mechanical skill, and in its results it was superseding the crown. The difficulties occasioned by the fiscal and excise regulations of this country had driven the manufacture of this kind of glass altogether from the country, and it had been altogether forgotten in 1832, when it became his duty to proceed to France—reside

there many months to learn the process, and to bring the workmen over to manufacture it. Though the English manufacturers had made improvements upon it, and it was conceded that English glass, in its beauty of finish, was superseding the manufacture of other parts of the world, yet it was to the foreigner they were indebted for their knowledge of it. Four-fifths of the glass now used was sheet glass, and cottages were now erected with larger squares than the houses in Fawcett-street possessed 20 years ago. Having explained the operations required to manufacture sheet glass, Alderman Hartley next referred to plate glass, the invention of some Frenchmen towards the latter part of the last century. This involved no manufacturing skill; it required less than a common black bottle. What was most required were capital and machinery to grind, smooth, and polish, and render transparent the sheet of glass formed by being poured on a table. Without steam-power it was impossible to make the largish window squares, each square foot requiring a power of 700 tons to polish it. The main feature of patent rough plate, an invention of Alderman Hartley's, was also explained as being in principle that of plate glass, except that in place of a pot being emptied upon a table at once, it was ladled out and small sheets were formed. Thus a plate glass was manufactured that did not require a polish, and was found best adapted for roofs of railway stations, and numerous other similar purposes. Alderman Hartley concluded by describing the manufacture of coloured glass. In a state of perfect purity glass was white, but it was found that the addition of various metallic oxides imparted to it the most beautiful hues. Oxide of manganese gave all shades of purple; oxide of cobalt, blue, oxide of chrome, yellow, oxide of copper, green and ruby; the two colours being only different degrees of oxidation, and the general result being to produce every kind of coloured glass. The use of coloured glass for ornamental purposes, the lecturer pointed out, extensively prevailed in religious edifices during the period from the 13th to the 16th centuries, after which it fell into disuse, but it was now reviving, and the glass was equal to anything that had been before manufactured. Great misapprehension existed that in coloured glass windows the result rested entirely with the artist; the whole of the coloured glass was supplied to the artist, and it depended upon his use of the material whether the window was a good or a bad one.

FALL OF A GABLE—FATAL ACCIDENT.

Two men were killed about a fortnight ago, at Greenbank, 8 miles from Derry, by the fall of the front gable of a meeting house, whilst they were voluntarily assisting the workmen to haul up one of the roof principals. It occurred thus, according to the information communicated through a local correspondent. The contractors, Hutchinson and Colhoun, Derry, had the gable topped, and baze set. By some means or other they got one truss in the side walls, and, to place it in position, commenced to haul it up from the outside, by means of two ropes thrown upon gable; the moment they pulled, about 30 ton of the top gave way, and these two poor people were ground almost to pieces; several others were very seriously injured. A sapient jury met, and returned a verdict of "accidental death."

ON ARTIFICIAL STONES.*

By PROFESSOR D. T. ANSTED, F.R.S.

THE following paper was read in Section G at the Cambridge Meeting of the British Association:—

The various compositions that have been invented from time to time to replace natural stone, by substances cheaper, more convenient, or more durable than any that can readily be obtained on the spot where the stone is required, are so numerous that it would be impossible merely to name them without occupying much time; and a mere enumeration could have little or no interest. My object in the present communication is to direct the attention of the section to the different classes of material that have been found available; to point out the principles involved in each, and the special advantage and disadvantage each possesses, to refer to a new, and I believe an important material, and to suggest the bearing of the whole subject on that of the preservation of stone from decay. Having for several years, and especially during and since the Exhibition of 1861, taken great interest in the subject of constructive material and the preservation of stone, and having lately been one of a committee of inquiry concerning the state of the stone of the Palace at Westminster, I have learnt from experience how little the whole subject is understood, how vague are the notions of intelligent practical men—builders as well as architects—and how difficult, if not impossible, it is for architects, engineers and builders to determine, by any series of experiments lasting only for a short time, whether a method proposed is likely to have any practical value when applied on a large scale.

The artificial stones hitherto used may be grouped under one of three heads—they are either (1) *terra cotta*, or manufactures of

plastic clay burnt in a kiln; (2) *cements*, manufactured from a certain kind of limestone containing foreign ingredients of such a nature that when converted into lime by burning, the lime thus made possesses the property of setting very rapidly and firmly when wetted; (3) *siliceous stone*, obtained by burning in a kiln sand and other substances moulded with a solution of silicate of soda, which is converted into a kind of glass firmly connecting the particles. I omit *plasters*, as rarely exposed to the weather.

Terra cotta.—The advantages of this material are (1) its cheapness and the abundance and the universal distribution of the clays of which it can be made; (2) the facility with which it can be moulded to any required form; and (3) the pleasant colour of the material when uninjured by long exposure to weather. The work recently executed at the Horticultural Gardens at South Kensington, is a favourable specimen. The disadvantages of *terra cotta* are (1) the uncertainty of the result, owing to the great and unequal contraction of all clays in burning; (2) its want of power to resist damp and frost whenever there is the slightest flaw, whether produced before or after burning; (3) its brittleness and want of strength; (4) its exposure to a disagreeable green vegetation in damp air after a few years weathering. *Terra cottas* are better adapted to a dry than a moist climate.

Cement.—Whether of the kind called *Puzzolana*, Roman, or Parker's or Atkinson's or any modification of these,—all the cements are similar in their nature. The advantages of cement used as an artificial stone are (1) its cheapness where made, and its ready transport; (2) its not requiring the kiln, but setting at once without contraction; (3) the facility of moulding and making up the material from the manufactured cement supplied; (4) its great strength when well made. The disadvantages are (1) that it cracks and peels badly when exposed to frost and damp air; (2) that it is very irregular, some samples yielding a much harder, better, and more lasting stone than others, without apparent reason; (3) that it is subject to a green vegetation, like *terra cotta*. These disadvantages do not all apply to its use in making concrete, for which it is admirably adapted.

Siliceous Stone.—This is manufactured under a patent by Mr. Ransome. It attracted attention at the Exhibition of 1861, and has since been much used. Its advantages are (1) the extreme uniformity of its texture; (2) the almost entire absence of contraction, and its freedom from cracks and flaws produced during burning; (3) its complete resistance to all kinds of weathering, to which may be added (4) its pleasing colour and tint.

On the other hand, among the disadvantages are (1) its cost, which is greater than for either of the other kinds of artificial stone; (2) its being subject to a white efflorescence of salt and a green stain from damp, both of which take away from its value for ornamental purposes, for which it is otherwise admirably adapted.

The mechanical and chemical principles involved in these different contrivances are as follows: in *terra cotta* the material is a kind of clay purer and more free from foreign substances than common clay, and mixed with dust from pottery already made. The manufactured article is thus a superior fire brick. The burning produces little chemical change or metamorphosis, but the condition after burning is so far different that ordinary exposure will not bring back the original texture of clay. Of closer texture than brick, there is less absorption from the surface; but in ornamental work there are always flaws enough to render frost following rain dangerous and injurious. In other respects the material itself is little more liable than brick to injury from exposure.

In cement the raw material is carbonate of lime, with a certain but variable proportion of foreign substances, of which clay or silicate of alumina is an important and even an essential part. All the varieties of cement stone, such as the stones called *septaria* and other nodules, in the London clay at Harwich, or the *Kimmeridge* clay in Dorsetshire, or the *Lias* in the Midland Counties and the north, or the mud of the Medway and Thames, agree in this. On burning this material the limestone is converted into lime, and the condition and proportion of the foreign material determines the value of the resulting cement. It is called *hydraulic cement*, as setting with almost any required rapidity when properly mixed with water, and this in damp air, during rainy weather, and even under water, absorbing no more water than is necessary for consolidation. Under various names, *puzzolana*, *Roman cement*, *Parker's cement*, *Atkinson's cement*, &c., this valuable material has been used from time immemorial, and is especially adapted for making concrete where a large proportion of foreign substances is introduced. As an artificial stone, although it hardens on exposure, its composition is too irregular to justify a very extended use. In the process of *setting*, the lime first mixes with water and becomes hydrate of lime, and is then rapidly converted into silicate of lime, adhering strongly in thin films to itself and to foreign bodies with which it is in contact.

The siliceous stone of Mr. Ransome consists of sand and foreign substances, worked up into a paste with the fluid silicate of soda. If left to dry in the air it would fall to powder, but being exposed to a high heat in a kiln a chemical action takes place. The alkali of the silicate of soda "combines with an additional quantity of

* From the *Journal of the Society of Arts*, October 10th, 1862.

silica supplied by the sand, &c., with which it is incorporated, and becomes converted into an insoluble glass, firmly agglutinating all the various particles together into a solid compact substance." No sensible contraction takes place in burning, and cracks rarely occur.

The resistance to weather offered by these three kinds of artificial stone may be thus stated:—1. Terra cotta, contracting irregularly in the kiln, is subject to cracks and flaws, into which water penetrating and expanding during frost, a peeling and splitting of the material naturally follows. It is almost certain, from the nature of the case, that delicate and ornamental work should be more liable to such injury than straight work and plain surfaces. 2. Cement, owing to the want of homogeneity in the raw material, is also very subject to flaws and cracks, and is injured by damp and frost like terra cotta. Both terra cotta and cement require painting in London and elsewhere. 3. The siliceous stone is rarely flawed in the kiln, but even if it is, the stone does not crack, or the surface peel by exposure to damp and frost, owing to the nature of the cement, which is, in fact, glass. It is also worthy of remark, that this material obtains its greatest hardness before it leaves the kiln, whereas cement gradually hardens, and continues to harden for many years if it be not destroyed before the induration is sufficiently advanced.

During experiments made in the laboratory on various methods suggested for preserving stone by a section of the committee recently appointed by the Board of Works in reference to the Palace at Westminster, Dr. Hoffman, Dr. Franklin, Mr. Abel, and myself being members of this sub-committee, a very remarkable material was submitted by Mr. Ransome and experimented on to some extent.

Dr. Franklin has since reported on this material. Its discovery arose out of the application of Mr. Ransome's method of preserving stone by effecting a deposit of silicate of lime within the substance of absorbent stones:—Mr. Ransome saturating the surface with a solution of silicate of soda, and then applying a solution of chloride of calcium, thus producing a rapid double decomposition, leaving an insoluble silicate of lime within the stone, and a soluble chloride of sodium (or common salt), which could afterwards be removed by washing. To prove that by this process a coating of hard silicate of lime was actually formed and deposited, as according to his theory it must be, Mr. Ransome made small blocks of various forms, in moulds, by mixing loose sand with the fluid silicate of soda, and then dipping the mould into the chloride of calcium. To the surprise probably at first of Mr. Ransome himself, but certainly of the chemists of the sub-committee, who performed the experiment in the absence of the inventor, there came out almost instantaneously a perfectly compact, hard, and to all appearance a perfectly durable solid. In such solids, at least there seems to be no element of destruction.

It was evident that such a result could not be without consequences. So far as it bore upon the inquiry of the committee, it is alluded to in their published report. Many considerations connected with the nature and condition of natural stones liable to destruction by weathering prevent an absolute decision without much previous experience. Mr. Ransome, however, immediately patented his "concrete stone," and as an artificial stone it deserves to be well known and thoroughly considered. It promises, indeed, to combine the advantages, and seems to show none of the disadvantages, of other artificial stones. It is cheap, being made of almost any rubbish on the spot where it is required, by the aid of materials neither costly nor difficult to convey. It is made with rapidity, and is ready for use without drying or burning. It hardly requires even a temporary shed for the purposes of manufacture, and may be made of any size, and moulded into any form. So far as can be detected, it is subject to no injury from weather, and becomes, in fact, if made with sand, a true sand stone, cemented by silicate of lime, than which there is no better natural material. No doubt it will be necessary to watch carefully for a few years the behaviour of a silicate of lime thus deposited, but if it endures that test there can be no doubt that it will then improve by time, increased age only hardening all known silicates of lime, especially those formed from lime used as mortar or cement.

In the application of this subject to the preservation of stone, there seems a probability that some valuable result will follow from the suggestion of Mr. Ransome, to effect the deposit of an insoluble silicate within the pores of an absorbent stone by double decomposition. The objection, strongly felt, that the material thus deposited would probably be in the form of unconnected grains, rather than a cementing film, seems answered by the formation of a stone so solid as the specimens show; and although it is unlikely that any contrivance can render absolutely permanent a stone that has once advanced far in decay, it will be a great step gained if poor and doubtful stone can be rendered almost indestructible before being placed in a building and exposed to danger.

So far as artificial stone is concerned, Mr. Ransome's material, if it really shows no unexpected weakness, will answer all requirements. It has been tried on a somewhat large scale in the bed of a steam engine, weighing two tons, in the International Exhibition, and

again in the new stations recently erected for the Metropolitan Railway. Smaller specimens are very satisfactory. It seems to combine cheapness with durability and resistance to weathering to an extent hitherto unknown.

I append the following results of experiments recently made, and communicated to me by Mr. Ransome:—

The transverse strength was tested in the following manner:—

A parallel bar of "Ransome's Concrete Stone," measuring	lbs.
4 inches x 4 inches, and resting upon iron frames, so	
as to bear 1 inch on the iron at each end, with 16 inches	2,122
clear between the supports, sustained a weight suspended	
from the centre of	
Whilst a bar of Portland stone of the same dimensions, and	759½
treated similarly, broke with	

The adhesive power was proved upon pieces of stone notched for the purpose; the sectional area of which at the weakest part was 5½ inches.

The specimen of Ransome's Concrete Stone sustained ...	1,980
Whilst Portland stone, of same dimensions, and treated	1,104
similarly broke at	
Bath ditto ... ditto	796
Caen ditto ... ditto	768

A 4-inch cube of Ransome's Concrete Stone was found to sustain a weight of 30 tons before it was crushed.

The Patent Concrete Stone was afterwards manufactured in the presence of the section by Mr. Ransome. It consists of any kind of mineral fragments, sand, limestone, or clay, mixed into paste with fluid silicate of soda (obtained by digesting flints in a steam boiler under high pressure in alkali), and afterwards dipped into a solution of chloride of calcium. The result is an almost immediate hardening of the pasty mass, and the specimens constructed were in a few minutes handed about the room. One specimen, weighing two tons, is in the International Exhibition, whilst others may be seen in the new façades of the stations of the Metropolitan Railway. These afford sufficient proof of the extent to which the manufacture has already advanced.

Mr. Fairbairn, the President, Dr. Robinson, and other officers of the section were so much interested in the manufacture that Mr. Ransome was asked to repeat his experiments at the soirée in the evening.

A discussion ensued, chiefly on the subject of the preservation of stone, in which Mr. E. Barry and other gentlemen took part.

Mr. Barry said it was premature to say what was the amount of preservative effects of the various solutions that had been tried; more time was required for a thorough test. There was sufficient evidence, however, to show that Mr. Ransome's process had preserved the stone and arrested the decay.

Professor Ansted then explained to the section the result of the labours of the Chemical and Geological Sub-Committee, of which he had been a member, in regard to the preservation of the stone of the new Houses of Parliament.

SOME NOTES IN DERRY.

A new Presbyterian Church (at Moville, a watering place on Lough Foyle, within 15 miles of Derry, County Donegal), is in course of erection. The schoolroom is at west end, separated from church by handsome screen, and entered by porch on south side, dimensions being 67ft. 6in. by 85ft. Sittings are provided for 275 persons, exclusive of schoolroom. The spire is 62 ft. high, frame weatherings above first octagon to be of white firebrick; open roofs, and benches; all wood work stained and varnished; rubble walling and Scotch stone dressings; cost about £1,100; Mr. J. G. Ferguson, architect; Mr. James Gallagher, Derry, contractor.

A Presbyterian Church of similar size to the foregoing, of simple Early English character, having western porch, and handsome bell turret, was opened for worship early in the present season, at Buncrana, Co. Donegal, another watering place on Lough Swilly, about 12 miles west of Derry; Mr. Robert Ferguson, of Derry, contractor.

A handsome little Wesleyan Chapel, in the Italian style, containing about 160 sittings, has recently been erected at the Waterside, Derry; same architect and contractor.

A large warehouse is being erected in Orchard-street, Derry, for Messrs. Shaw and Finlay, Belfast and Derry, from designs by the same architect. The front, which will be rather effective, is to be plastered, the line of each stay marked by moulded string course and frieze, and the whole finished with a bold cornice and blocking; material, Ravenshill pressed bricks; the mouldings, strings, and cornices being of Scotch stone. Mr. Hugh McGilley, Derry, contractor.

The works at the "North Western Female Penitentiary," Londonderry, same architect, are being vigorously pushed forward by the contractor, Mr. Robert Ferguson.

THE RESOURCES OF TURKEY.*

RESUMING the consideration of Mr. Lewis Farley's book, as above entitled, and referred to at some length in page 241, we now come to that portion more immediately treating of the statistics of "Turkey Proper." Constantinople first engages attention, but is disposed of more briefly than might have been expected for the capital city, or for a seaport which the author announces "to be ranking in commercial importance immediately after Liverpool, and before Marseilles," and in the trade of which an immense increase has admittedly taken place between 1850 and 1856, and subsequently as far as 1859. A valuable tabular statement is added to the chapter, showing the number and tonnage of the vessels of each nation, exclusive of steam vessels, that entered and cleared in the latter year. A somewhat more lengthened notice would, undoubtedly, have proved acceptable, but we pass on to the next and more voluminous chapter, relative to "Smyrna."

The main questions herein considered are the opportunities presented for establishing a local bank, and the history of former banking transactions, with their future probabilities, in which, though the general reader may take no immediate interest, Mr. Farley is undoubtedly, from his extensive practical experience in that regard, and unquestionable commercial acumen, quite "at home."

Brussa, "the great centre of a great trade in silk," is similarly considered, and Mr. Farley enters ably into the details requisite for effective management, and produces some important official documents in support of his views. Trebizond (the ancient Trapezus), Samsoun, Salonica (ancient Thessalonica), Volo, Monastir, Bosnia, Rhodes, Mitylene, Scio, Cyprus, Cos, Crete, and Galatz, are each consecutively treated, as to their export and import trade, mines, manufactures, &c., &c.; and the next department of the book is devoted to Wallachia and Moldavia. With a comprehensive treatise on "Syria," by which the reader is conducted through the commercial features of Beyrout, Aleppo, Damascus, Jerusalem, Tripoli, &c., Mr. Farley's book concludes, having successfully established, by an abundance of statistical gleanings, the author's main object, viz., that, in the portion of the world referred to, there is ample field for enterprise and the profitable investment of capital, and that "no undertaking would be more successful at the present moment than a well-conducted and properly managed bank." We venture to add a hope that, at no distant period, the opportunity so presented will be taken advantage of, and that Mr. Farley's eminent attainments may find a still wider field for their practical development.

DUBLIN "HOTEL" ARCHITECTURE.

IN passing down Lower Abbey-street, a change for the better is observable in the appearance of an old and highly respectable house, "the Ship Hotel," opposite the Royal Hibernian Academy, and the internal arrangements are also remarkable for their convenience and handsome and appropriate decorations. The bar, which before was close and confined, and by no means adequate to the large requirements of this establishment, has been extended in size, and has been rendered commodious by an arrangement at once simple and pleasing. The old coffee-room, in which the "Irish harper" nightly tuned the lays of his native land, has been considerably enlarged, the strictest attention having been paid to proper ventilation. On entering, one hardly recognises the "Old Ship," yet enough is left to connect the past with the present; and what has been done has not obliterated ancient reminiscences, but has clothed them in a new but not less national garb.

An opening from the coffee-room is the medium of communication between the great laboratory of cuisine (which is distinguished for its remarkably complete arrangements), and the hall of refectory. In the kitchen we were pleased with the fine cooking range, which we understood was an invention and a patent of Mr. John Radley (of the Gresham Hotel), under whose superintendence it was erected. In the rear of the house, and on the ground floor a most respectable and convenient bar has been fitted up for those who do not desire to seek hotel accommodation. The upper storey is occupied by three billiard rooms, *en suite*, fitted up with every convenience. The light is well arranged, and all the appointments are perfect. A convenient smoking-room, and a private dining-room, have been arranged over the front bar, looking out into Abbey-street. National emblems, in artistically designed insignia, are displayed on the exterior in glass panelling, in the spandrels of the arched windows of the ground floor, and contribute to its conspicuousness. We understand that Mr. McCurdy, of Harcourt-place, was the architect commissioned by Mr. John Cunningham (the proprietor) to design and carry out these improvements, and that Mr. John Cunningham, of Dalkey, was the contractor, on whom the execution of the work reflects much credit.

* The Resources of Turkey (considered with especial reference to the Profitable Investment of Capital in the Ottoman Empire), by J. Lewis Farley, author of "Two Years in Syria," &c. London: Longman, Green, Longman, and Roberts.

EXHIBITION SCRAPS.

GOTHIC IRON SAFE.—A medal has been given to Carl Hauschild for his wrought metal safe, in Gothic guise, shown in the department of the Zollverein. It is a handsome piece of work of its kind, with elaborately-wrought hinges; the plain portions of the safe being covered with a red lacquer, and terminating in a fanciful brat-fishing. To what extent it may be actually a fireproof safe, or whether it is but a pretty deceit, we have no means of telling: the medal is for excellence of workmanship. Looking inside, this excellence is specially apparent; and about the lock, we find a well-engraved legend, which says, if we remember it well enough to translate, it is safe against thief and fire while it is in the Master's hands; but, unless the Lord keep watch, a lock is of no avail;—a paraphrase, in fact, of a text that will at once occur to the reader. Touching the capability of safes to resist fire, we fear many that are sold in England with that character are mere deceptions. An American paper describes the proofs offered recently by the agents of two rival iron-safe manufacturers. The one was a Yankee; the other wasn't. He that wasn't told his story. A game cock had been shut up in one of his safes, and then it was exposed three days to the most intense heat. When the door was opened, the cock stalked out, flapped his wings, and crowed loudly, as if nothing had happened. It was now the Yankee's turn. A cock had also been shut up in one of his safes, with a pound of fresh butter, and the safe was submitted to the trial of a tremendous heat for more than a week. The legs of the safe were melted off, and the door itself so fused as to require the use of a cold chisel to get it open. When it was opened, the cock was found frozen dead, and the butter so solid, that a man who knocked off a piece of it with a hammer had his eye put out by a frozen butter splinter! We don't ask for such a result as this; but we do maintain that a safe sold as fireproof should stand fire.

THE WATCHFUL BED.—Near this safe is the mechanical bed from Hanover, fitted with mechanism (wasted ingenuity), which will first ring a gentle alarm to rouse the sleeper; strike a light for a lamp and another to boil a cup of coffee; repeat the alarm in louder tones if the first bell has failed; pull off the sleeper's night-cap if still somnolent; and ultimately, enraged by the neglect of warnings, tilt the occupant on to the floor. It is simply a toy. We have watched the operations more than once, and beg any railway traveller who may be led to order one by his desire not to miss the train, always when he uses it to employ some careful person to sit up with it; or he may wake one morning on the floor with a broken arm, and only in time to escape from a house on fire.

THWAITE'S ARCHITECTURAL MODELS.—The models of a church and other buildings, executed by Mr. C. N. Thwaite, and shown in the Architectural Gallery, deserve great praise. These are carved with the knife out of cardboard, and are remarkable for delicate and careful manipulation. If models of designs were oftener made before the erection of the structure than is usually the case, advantage would result; and a better man for the purpose than Mr. Thwaite does not occur to us.

ROYAL HIBERNIAN ACADEMY OF ARTS.

WE understand that the distribution of the medals awarded at the annual inspection of the schools of this institution will take place on this (Saturday) evening, at the Royal Hibernian Academy House, and the works produced by the students during the year's sessions will also be exhibited on that occasion. The Inspector of the Department of Science and Art, Eyre Crowe, Esq., visited the Academy on Thursday last, and in conjunction with the President, Mr. Catterson Smith, and Mr. G. F. Mulvany, decided upon the awards. The result will be made known this evening, and we have heard that the Inspector awarded more medals than the Academy had at first intended to apportion, which speaks well for the performances and industry of the students.

THE ARCHITECTURAL ASSOCIATION OF LONDON.

ON last evening this association held its first meeting for the session, and there was a most numerous attendance of members and their friends. The President delivered a learned and lengthy inaugural address, being chiefly a resumé of events connected with the art and science that had taken place during the year. A spirited discussion ensued, and after passing a most convivial evening, the company separated.

The ventilators of Mr. Josiah Moore, of Fleet-street, London, and of Mr. McKinnell, of Glasgow, respectively, have been honorably mentioned in the Juror's report of the International Exhibition.

CONVENT AND CHURCH OF THE HOLY CROSS, KENMARE.

Our lithograph impression for current number represents a perspective view of this pleasing group of buildings recently erected at Kenmare, from the designs of Mr. Hansom, of Clifton, near Bristol, architect; Mr. D. W. Murphy, of Bantry, being the builder. In the district wherein this structure is situated, so architectural a composition is exceedingly rare, the distance between those having the slightest pretensions to merit being "few and far between," indeed; and therefore, when existing, entitled to the greater publicity, both in just acknowledgment of intrinsic merit, and with a view of inducing the worthy example to be followed elsewhere. The design of the building illustrated, which is in the Gothic style, adapted to conventual and scholastic purposes, speaks for itself; and to the unexceptionable character of the workmanship throughout, the well-earned reputation of the builder, Mr. Murphy, who has executed the majority, if not *all*, of the important works in this and surrounding counties, affords a testimony which our information in this individual case fully endorses. The internal arrangements, which comprise suites of apartments for religious, reception, domestic, and a variety of other purposes, with spacious approaches, are distinguished for their general excellence. The material employed throughout for the more substantial portions is mostly local, and the fittings and decorations are appropriate to the style of architecture adopted.

INSTITUTION OF CIVIL ENGINEERS.

THE Council of the Institution of Civil Engineers have awarded the following premiums for papers read during the Session 1861-62:—

1. A Telford Medal, the Manby Premium in books, and a Stephenson Prize of 25 guineas, to Charles Augustus Hartley, M. Inst. C.E., for his "Description of the Delta, and of the works recently executed at the Sulina Mouth of the Danube."
2. A Telford Medal, and a Miller Prize of 15 guineas, to John Henry Muller (of the Hague), for his paper "On Reclaiming Land from Seas and Estuaries."
3. A Telford Medal, and a Miller Prize of 15 guineas, to John Paton, M. Inst. C.E., for his paper "On the Sea Dykes of Schleswig and Holstein, and on Reclaiming Land from the Sea."
4. A Telford Medal to James Abernethy, M. Inst. C.E., for his "Description and Illustrations of the works at the Ports of Swansea, Silloth, and Blyth."
5. A Telford Medal to John Bailey Denton, M. Inst. C.E., for his paper "On the Discharge from Underdrainage, and its effect on the Arterial Channels and Outfalls of the Country."
6. A Watt Medal, to Joseph D'Aguilar Samuda, M. Inst. C.E., for his paper "On the Form and Materials for Iron-Plated Ships, and the Points requiring attention in their Construction."
7. A Council Premium of Books, to James Brunlees, M. Inst. C.E., for his paper on "Railway Accidents—their causes and means of prevention."
8. A Council Premium of books, to Captain Douglas Galton, R.E., F.R.S., Assoc. Inst. C.E., for his paper on "Railway Accidents, showing the bearing which existing legislation has upon them."
9. A Council Premium of books, to Henry Charles Forde, M. Inst. C.E., for his paper on "The Malta and Alexandria Submarine Cable."
10. A Council Premium of books, to Charles William Siemens, F.R.S., M. Inst. C.E., for his paper "On the Electrical Tests employed during the construction of Malta and Alexandria Telegraph, and on insulating and protecting Submarine Cables."
11. A Council Premium of books, to James Atkinson Longridge, M. Inst. C.E., for his paper on "The Hooghly and the Mutla."
12. A Council Premium of books, to James Oldham, M. Inst. C.E., for his paper "On Reclaiming Land from Seas and Estuaries."

WATER WORKS ARBITRATION.

THE Arbitrator sat on the 27th ult. in the City Hall. Sergeant Armstrong and Mr. Purcell appeared for the Messrs. Bentley, who claimed for land at Stillorgan, which, according to the plans lodged, it was proposed to take.

The Arbitrator said that, on the last occasion he sat, Mr. W. W. Bentley agreed that he should furnish to him a statement of the grounds on which he relied for requiring him to proceed to make an award in his case. It was agreed that the corporation should furnish a statement of the grounds on which they required him not to go on with the arbitration in the case of the Messrs. Bentley. It was further agreed that on receipt of these documents he (the arbitrator) should lay them before counsel, and obtain his advice as to how he

should act. Mr. Bentley had not sent him that statement, but had sent a kind of notice requiring him to proceed. He did not receive it till the 21st, and the corporation rejoinder came on the 23rd. Under these circumstances he had not been able to take advice, as he had intended, for his guidance.

Sergeant Armstrong said the notice sent by Mr. Bentley on the 16th was one giving sufficient reasons; but Mr. Bentley was not bound to furnish a long statement of arguments. This case simply was, that by the various acts of the corporation in relation to his lands a contract had been created which one party could not get out of without the consent of the other. He now, on behalf of Mr. Bentley, submitted that the arbitrator had the case regularly before him, and was bound to proceed, with a view to the making of his award, and he now called on him to do so. If he refused, Mr. Bentley should only apply to the Court of Queen's Bench to compel him.

Mr. Barry, Q.C., denied that any contract in equity had been created, and submitted that, as the corporation stated they did not require Mr. Bentley's lands, the arbitrator could not make an award as to what was not to be touched.

After some discussion, it was agreed that the arbitrator should lay the notices he had received in the matter before counsel, take his advice, and inform the parties by this day (Saturday) whether or not he would proceed with the inquiry relative to Mr. Bentley's lands.

THE NEW ARMOURY IN THE TOWER.

SHORTLY, it is expected that the new and magnificent armoury apartments in the venerable Tower of London will be open to the inspection of the myriads of metropolitan sight-seers, and we, having been very recently favoured with a *private* view, can promise the public that immense gratification must result from a visit. Entrance is obtained through an antiquated doorway, and the visitor steps on to the platform of an hydraulic lift, by which, at request, he is hoisted upwards speedily to the level of the armoury floor. Thence gazing around and above him he sees no less than *sixty-two thousand* stands of arms, comprising highly-burnished rifles, ranged in rack over rack, horse pistols, revolvers, &c., &c., the cutlasses and short swords being especially most admirably and effectively arranged as balustrades, while *all* these instruments of death, with their accessories, such as ramrods, locks, &c., are, together with the massive helmets and breastplates, arranged in beautiful and most artistic devices, the *coup d'œil* of the whole being most imposing. The building works in connection with these apartments have been under the direction of her Majesty's War Department, and the contractor was Mr. Smyth, of Picnic. Such of our readers as may visit London when the new Armoury is open ought not to lose the opportunity of seeing it.

AMERICAN ART CRITICISM.

THE *Cleveland Herald* tells the following story:—

A finely dressed woman stood gazing with admiration at the Perry statue. Seeing a gentleman also looking at it, she enquired who it was meant for. He replied, "Commodore Perry." She then asked if it was like the Commodore, to which he replied he was unable to say. One more question trembled upon her tongue, and she put it thus: "What is it made of—is it ivory?"

This reminds us of a scene which occurred in the studio of one of our artists, where is exhibited a very fine old painting of St. Andrew bearing his cross, by Corregio. An individual sauntered in, and began looking at the pictures with all the avidity of curiosity. At last he got his eyes on St. Andrew.—"Whose portrait's that?" "That is St. Andrew," answered the obliging artist.—"St. Andrew? Who is he?" "One of the Bible characters."—"Bible? Who took him?" "It was painted by Corregio."—"It was. Who's Corregio?" "An artist that lived in the fifteenth century."—"And he took St. Andrew? Well, I swon! What's he doing, playing on a harp?" "He is represented bearing his cross."—"He is! Well, I'm darned! Was he a bearin' it when he had his portrait took?"

THE ENGINEERING APPOINTMENTS ON THE MIDLAND GREAT WESTERN RAILWAY.

THE directors of this company met on Thursday week last, to consider finally the applications for the situations of civil and locomotive engineers, vacant on their railway. The fortunate candidates selected were Mr. James Price, of the Dublin and Belfast Junction Railway, as civil engineer, and Mr. Robert Ramage, of the Caledonian Railway, as locomotive engineer. We believe that both these appointments will be found satisfactory, as the parties have had great experience, and bear high characters in their respective departments.

Dublin Builder

Nov. 1st 1862



CONVENT AND CHURCH OF THE HOLY CROSS KENMARE

CHAS. F. HANSOM ARCHT.

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BRITISH AND IRISH PATENTS.*

ANY person, whether a British subject or a foreigner, may obtain Letters Patent from the Crown, protecting, for fourteen years, such inventions as he himself has made, or has derived from foreigners not domiciled here. But the patentee must himself be the actual inventor, or the first importer of an invention; and a patent will be void, if the invention in respect of which it was granted, was publicly known in any part of the realm at the date of the patent. Where more persons than one have been concerned in making an invention, the patent must be taken out in their joint names. No patent can be obtained for an invention in respect whereof a foreign patent has been granted which has expired.

One patent will not be allowed to include several distinct and separate inventions; but where one invention is applicable to the improvement of several manufactures, or where several inventions are applicable to the improvement of one and the same manufacture, the whole may be included in one patent.

It is not easy to explain in a few words, what inventions are, and what are not legally patentable. The nicety of distinction with which many cases have been decided in our courts of law, renders a broad and clear definition all but impossible. We shall here content ourselves with saying, that to render a patent valid, the invention must be new, useful, and something more than a bare principle. The inquiry as to the quantity of inventive talent exercised in any given case, becomes of less consequence when the invention is of real benefit to the public. Patents for inventions that seemed to make but a trifling step in advance of what was previously known, have been very carefully upheld by the administrators of the law, where it appeared that important advantages were gained by the public in the manufacture either of a better article, or of one at a cheaper rate than before.

It may be stated generally, that every invention which has been judicially sanctioned, falls under some one of the following heads:—

1. Vendible articles, the results of mechanical processes, such as waterproof cloth, vulcanised caoutchouc, and medicines.
2. Machines, or improvements in machinery.
3. Processes, whether they require or do not require special machinery to carry them into effect.

A patented process is sometimes entirely new; but much more commonly a part only is new. The simple combination of two known things has been held patentable when the result was advantageous. For example, the combination of the hot-air blast with stone coal, in the smelting of iron (the hot-air blast and stone coal having been separately used for this purpose before), was decided to be a patentable invention, since these two things had never been previously combined, and the combination was proved to be of great utility. Nay, a process which differed in nothing but the omission of a step from one previously well known, was held patentable.

Our space will not permit us to enter further into this subject, and there is less need that we should do so, since it has been fully treated in "The Law of Patents." In all cases of doubt, we recommend the inventor to seek the opinion of an experienced patent agent; and, interested as the advice may seem, we are quite sure that, sooner or later, he will perceive it is the best that can be given him.

THE TITLE.—When an inventor has resolved to apply for letters patent, the first thing to be considered is the title which must be given to the invention in the petition. There is often a good deal of difficulty in selecting a proper title, and inventors have not unfrequently lost the benefit of their patents in consequence of an error in this point.

The title must point out distinctly and specifically the nature of the invention; it must not be too general, and it is desirable not to make it too narrow—faults which a professional person is more likely to avoid than these not accustomed to the preparation of patent documents.

The title having been framed, and the petition prepared, it must be lodged at the office of the Commissioners of Patents, along with a declaration, made before some competent authority, and a provisional specification. This last document is required to state distinctly and intelligibly the whole nature of the invention, so as to show in what it consists, and the means by which it is carried into effect. It is not necessary, however, to go into minute details.

PROVISIONAL PROTECTION.—The title and the provisional specification are then referred to the Law Officer, for his approval. If dissatisfied with them, he may require them to be amended. If he approves of them, he issues his certificate to that effect, and this being filed in the Commissioners' office, the invention becomes provisionally protected—that is to say, for six months, commencing at the date of the application—it may be used and published by the inventor. We would advise an inventor to be cautious how he makes his invention public until the time for opposing the grant has gone by.

The object of compelling an inventor to lodge a provisional specification with his petition, is to provide against the introduction into the final specification of any matter not contemplated by him at the time of his application. Improvements in mere details may be inserted in the final specification with perfect propriety; but such improvements must require the use of the original matter of invention set forth in the provisional specification. Although the latter is only a temporary document, great care should be bestowed on its preparation.

The expense of proceeding thus far in the procurance of a patent, including agency and all other charges, does not exceed £10 10s.

In place of lodging a provisional specification, an inventor may, if he chooses, lodge a complete specification along with his petition. In such a case, his invention is protected from the day the documents are deposited at the Commissioners' office. The disadvantage of this proceeding is, that he has no further opportunity of perfecting his invention in its details. The trials and experiments which an inventor may openly make for six months after obtaining provisional protection, generally suggest a variety of improvements, which may be embodied in the final specification; but, when a complete specification is lodged at starting, he is debarred from the benefit of further improvements, which, if very important, must form the subject of another patent.

An applicant, as soon as he thinks fit, after obtaining protection in either of the above-mentioned modes, may give notice of his intention to proceed with his application; whereupon the Commissioners of Patents will cause the application to be advertised in the *Gazette*, with the view of giving persons who have an opposing interest the opportunity of objecting to it. This notice of the applicant's intention to proceed must be given at least eight weeks before the expiration of the provisional protection.

In case of opposition, the matter is referred to one of the law officers of the Crown, whose decision guides the Commissioners, unless it is overruled by the Lord Chancellor.

Objections to the issue of a patent cannot be delivered after the expiration of twenty-one days from the appearance of the notice to proceed in the *Gazette*. It is very desirable that the applicant should advance as quickly as possible to that stage of the proceedings where he is safe from objection; and he will do well to place himself in the position of being able to demand the law officer's warrant, whenever he pleases. The expense of arriving at this point (assuming that there has been no opposition) does not exceed £7 2s.

Application for the law officer's warrant and for the patent must be made at least twelve clear days before the expiration of provisional protection, or the protection by reason of the deposit of a complete specification, and the patent must issue during the continuance of that protection. The Lord Chancellor, under special circumstances has, however, power to extend the sealing of the patent for a month.

One patent now embraces the whole of the united kingdom of Great Britain and Ireland, and its total cost, including the two sums mentioned, does not exceed £30 10s.

Of late years the Commissioners have refused to allow a patent to extend to the colonies.

At the termination of three years from the date of the grant, a further sum of £50 must be paid, and a final sum of £100 at the end of seven years, otherwise the patent will become void.

Patents taken out in this kingdom for inventions previously patented in a foreign country, become void at the expiration of the foreign patent.

A circular of information as to foreign patents may be procured from the authors of these hints.

THE SPECIFICATION.—In case the applicant did not lodge a complete specification with his petition, he is obliged to file a specification fully describing the nature of his invention, and the manner of carrying it into effect, within six months from the date of the patent. Very great care must be given to the preparation of this instrument to make it comply with the decisions of the Courts. The instances of the fatal effect of unskillfulness in preparing specifications are innumerable. If drawings are required to the understanding of the invention, they must be prepared in duplicate, and one copy attached to the specification, and the other lodged at the Commissioners' office. *The expense of the specification will depend upon its length, and the nature of the drawings.* Each specification is engrossed on parchment, bearing a £5 stamp. All specifications and the accompanying drawings are printed by the Queen's printer, and may be purchased for a small sum.

If inventors, who reside in the country, will forward the particulars of their inventions, they will receive by return of post the necessary papers for their signature, and provisional protection will then be at once obtained.

REGISTRATION OF DESIGNS.—Protection by registration may be obtained, under some recent statutes, in respect of certain articles falling into the two classes of Ornamental Designs and Useful Designs.

Ornamental Designs.—New and original designs, applicable to the ornamenting of any article or substance, whether by printing, paint-

* By J. P. Byrne, Solicitor and Patent Agent, 4, Lower Ormond-quay, Dublin, and 47, Lincoln's Inn Fields, London.

ing, weaving, or otherwise, and whether exhibited in the pattern, as in silken or woollen fabrics; or in the shape, as in the case of a jug; or in the external decoration, as in the painted or relieved figures on china,—are protected.

The cost of registration, the length of time for which protection can be obtained, and the articles which can be so protected, are shown in the following synopsis:—Articles composed wholly or chiefly of metal.—Cost £4 11s. 6d.; Time, 3 years.

Articles composed wholly or chiefly of wood, glass, earthenware, bone, ivory, papier maché, or other solid substance, not being metal. Also designs for the ornamenting of articles composed of ivory, bone, papier maché, and other solid substances not composed of metal, wood, or glass. Also floor-cloths, oil cloths, carpets, and shawls, except those specially mentioned below.—Cost, £2 11s. 6d.; Time, 3 years.

Paper-hangings.—Cost £2 1s.; Time, 3 years.

Shawls, if the design be printed thereon.—Cost.—£1 12s. 6d.; Time, 9 months.

Yarn, thread, warp, or woven fabrics, composed of linen, cotton, wool, silk, or hair, if the design be printed thereon.—Cost 6s.; Time, 9 months.

Woven fabrics composed of linen, cotton, wool, silk, or hair, coming within the description of furnitures, the design being printed thereon, and the repeat of the design not being larger than twelve inches by eight.—Cost, 10s.; Time, 3 years.

Woven fabrics, not previously mentioned.—Cost, 10s.; Time, 1 year.

Lace, and any article not falling under the heads above specified.—Cost from 10s. to £4 11s.; Time, 1 year.

Copyright in ornamented designs may be extended for a further term not exceeding 3 years.

USEFUL DESIGNS.—The Act 6 and 7 Vict., cap. 63, declares that "any new, original design, for any article of manufacture having reference to some purpose of utility, so far as such design shall be for the shape or configuration of such article," may be protected for three years. Duplicate drawings and specifications are required to be delivered to the Government Registrar where necessary. The expense of a Registration under this act ranges from £12 to £20.

Designs may be provisionally registered for twelve months at a trifling expense, the object of the provisional registration being, to allow the proprietor of such designs to exhibit them in certain public places defined by the act, without thereby losing his copyright in them, and enabling him afterwards to complete the registration in the usual manner.

All articles protected under these acts must bear upon them certain marks or words, indicating the fact of the design having been registered.

Persons who pirate a registered design lay themselves open to a penalty not less than £5, and not exceeding £80 for each offence, and to actions in the courts of law.

Persons duly acquiring copyright in any design may transfer the same, or grant licenses for the use of the design. The transferee or licensee may have his name registered, and will then have the same rights against persons pirating the design as the original proprietor.

When shape or configuration is the essential feature of the invention, then protection can be obtained by registration under these acts of Parliament. But when the invention embraces something more than mere form, a patent should be applied for. It is sometimes not easy to say whether a patent or registration affords the appropriate kind of protection; but where processes, applications, and chemical discoveries are in question, it is certain that there is nothing in these acts to authorise registration.

SUBURBAN IMPROVEMENTS.

In continuation of our notices of building progress in the suburbs we have to add the following items:—

Amongst the numerous and most recent architectural acquisitions in the shape of "domestic structures" in the neighbourhood of Blackrock, Co. Dublin, are especially noticeable two handsome semi-detached dwelling houses just finished in Avoca Avenue, a few minutes walk from the town and railway station, and central in a most delightful and beautiful locality, where many of the *élite* of the metropolis have their suburban residences. Of somewhat Italian and Byzantine style of Architecture combined, the exterior of these houses is remarkably effective, and, what is better, displays taste and judgment in the ornamental accessories, a compliment we are not always permitted the pleasure of paying the architects of similar class of structures generally in the vicinity of Dublin, who often sacrifice those very desirable ingredients to profuseness of ornament which may please the vulgar eye but is by no means artistically orthodox. Each of these twin houses presents a pedimented gable on principal front with modillioned cantilever roof, and on the ground floor level is a spacious and handsome oriel window lighting a principal apartment, and filled in with plate glass. Receding from

the quoin of this portion is the entrance porch, through which access is obtained to the interior through a well proportioned doorway, enriched with Byzantine mouldings, and immediately communicating with an inner hall or corridor leading to the drawing, dining-rooms, parlour, &c., which are of spacious dimensions and appropriately decorated. A fine principal, and well-lighted staircase, with bold handrail of polished mahogany, and neatly turned balusters of oak conducts to the upper floor and mezzanine off the half pace; while through a lesser one, concealed by wainscoting and a neatly panelled door, the basement and the kitchen-yard are approached. The accommodation throughout—which comprises three sitting rooms and five family bed-rooms, besides comprehensive culinary offices, pantries, servant's-room, water closet, &c.—is unexceptionable, and we doubt not will be found ample to meet every probable requirement. To secure an effective sewerage, ventilation, and an abundant supply of water, the attention of the architect, Mr. A. G. Jones, has been successfully directed; and his design has been honestly carried out in every respect with excellent workmanship and the best of materials. Front and rear are flower gardens, the former seen from the road and bounded by a low wall, with wide entrance gates of timber framing and cast iron panneling, attached to red brick piers capped with granite; the latter beyond the kitchen yard and enclosed by substantial walling, the entire depth being about 200 feet. Mr. Gregory Murphy, of Williamstown, is the *owner and builder*, and for many years past has been extensively engaged in the latter capacity in this and other localities. We understand that for the purpose of prosecuting further operations adjoining, he will dispose of these houses by auction on the 10th inst., Mr. Jaffray Barcroft being the auctioneer.

A spacious mansion with red brick front, cemented main cornice and parapet, porch and oriel windows, is being erected in the Cross Avenue, Booterstown, for Mr. Johnston of Suffolk-street; Mr. M'Curdy being the architect, and Mr. Gregory Murphy the builder. The outlay will be about £1200. The internal arrangements are very commodious, and the rear windows look out into a splendid garden attached to the house, and command an extensive view beyond of the Bay, Howth, &c.

Four very neat dwelling houses have just been completed in Bushfield Avenue, opposite Sandford Church, and are entitled "Carlisle Terrace." The fronts are built with red stock bricks, surmounted by a cut stone cornice, frieze and blocking, the same material being employed in the quoins, steps and landings. Plate glass windows in two squares, and well proportioned hall-doors ornamented with fluted columns and suitable entablatures, contribute much to the appearance of the façade. They are let for £55 per annum. Eight houses of the same class and style have also been commenced in the same range, and no doubt will be finished in equally excellent workmanship. The foregoing are the property of Mr. Thomas Connolly of Besborough Parade, Rathmines, stucco plasterer, who is his *own* builder, and in these important works is investing the fruits of a successful career of honest industry.

Four dwelling-houses of superior character are being built on Leeson-road, according to plans by Mr. Burne, architect; Messrs. Hall and Son, builders.

THE ALBERT (IRISH) TESTIMONIAL, AND STEPHEN'S GREEN OPENING PROJECT.

THE committee specially appointed to carry out the design of opening the green as a public park, in connection with the testimonial to his late Royal Highness, held their first meeting on Saturday last at half-past three o'clock, pursuant to agreement. The Right Hon. the Lord Mayor, chairman.

There were also present—Right Honourables the Lord Chancellor, Mr. Justice Fitzgerald, and Mr. Joseph Napier; Captain Lindsay, J.P., High Sheriff for the county; Messrs. T. M. Gresham, Thomas Pim; E. K. Moylan; Henry Alexander Hamilton, J.P.; L. E. Foote; William Dargan, D.L.; and Alderman Atkinson, J.P.

Letters were read from Mr. Benjamin Lee Guinness, approving of the suggestion and authorising his name to be placed on subscription list for £100; from Messrs. J. W. Murland, and T. de Moleyns, subscribing £10 each, and from Mr. E. Senior, £5.

The special committee being now constituted, with power to communicate with the commissioners of the Green, the Lord Mayor was requested, on behalf of the committee, to communicate with the chairman of the commissioners, and to arrange for a meeting and conference between the commissioners and committee.

The meeting adjourned until this day, (Saturday) at 8.30, for that purpose.

Nature supplies truth and fact, Genius gives the embellishment which beautifies and adorns them: and as in Nature many beauties are hidden till revealed by the all-diffusing light of the sun, Genius irradiates and makes visible objects, which to a common observer pass unheeded or are only imperfectly appreciated.

ON PAINTED GLASS.*

I CLAIM a certain magical effect for ancient, as compared with modern, glass, and I attribute this to its semi-opaque texture, which gives a tone—an atmosphere, if the term be more expressive—to the light which it transmits, which is not comparatively, but absolutely, wanting in every modern window. The causes of the defect in our modern glass are various, but they all mount up to this one—that, though we are sensible enough of the charm of the ancient effect, we have never set to work to produce it by the same means. We have attempted to imitate it by contrivances reaching only the surface whereas the texture of the whole material is essential to its production.

And the question concerns all glass now made, as compared with all the old glass. It is not only the white, or only the coloured glass, in which the difference is apparent, or in which it is all-important. There is more tone—and I need not say how important tone is as distinct from colour—there is more tone in any square foot of glass in York Minster, white or coloured, than in all the acres of glass, white and coloured put together, in the International Exhibition of this present 1862. And to use the all-powerful *argumentum ad crumenam*, I trust there is yet so much discrimination in the patrons of glass workers that one square foot of tone, though it were only in one colour, or in grisaille, would have secured more orders for its exhibitor than any amount of glaring transparent colour.

I cannot help regretting, *en passant*, that Mr. Winston, who has done more than any one else to direct attention to the tone of old glass, to its beauty, and to its causes, has yet in his practical, or at all events in his successful, efforts, begun and stopped short at the reproduction of the ancient colours. When the more important, and far more fundamental difficulty of a texture producing tone has been overcome, the merit of first pointing to the right path, will belong to him. We can hardly expect him to re-enter the heated arena of the glass house. He serves a jealous mistress, and having been admitted into the Temple of Themis by the golden door, he is right not to provoke her to turn him out by the glass window.

Deserted, then, by Mr. Winston, whither shall we turn? There are three parties concerned. There is the producer of the pot metal; there is the maker of the window; there is the general customer, or the public; and standing by, not without a presumptuous hope that he may let drop some word helpful to all, is the fidgety, crotchety ecclesiologist. The influence of these parties is inversely as their power. The maker of the pot metal could do it if he would, but perhaps at the cost of some experiments, and certainly not without a special preparation of his kiln, for the pot metal could no longer be melted together with glass requiring more perfect fusion. Without a strong pre-sure from without he will not, therefore, help us, though he could. The maker of the window, unless he is a mere craft-man, ought to feel the need of a better medium, that he may satisfy his own higher aspirations; but he is "driving such a roaring trade" that the timid whisper of his æsthetic conscience is not heard through its din; if it were he would not rest till he had succeeded in procuring, or even in producing for himself, as every glass worker of old was obliged to do, a better material. The general customer is of course utterly without directly productive power, but only let the true state of the question become known (and here comes in the voice of the ecclesiologist) and the demand for good glass or none will ensure the supply. It will be like the old woman taking her pig to market, the ecclesiologist begins to touch the public, the public begins to jog the painter, the painter begins to poke the maker, the maker begins to dress his kiln, and the glass that pours out is fit for use.

But now, for argument's sake, let us suppose that we have that semi-opaque texture in our glass, after which, I wish I could say our glass workers were feeling. There are some consequences, all of them of happy omen, which would naturally follow. First (and it is the only one that I shall pursue at present), white, that is grisaille, glass would rise immensely in the scale of importance, and this alone would work a revolution in the whole practice of window making. Taken as the base of a window, white glass would hold its own as compared with the most varied and gorgeous colours. A pattern window, that is a window composed of a ground of white glass, diapered with tendrils of plants, leaves and flowers, and enlivened with devices of colour interlaced or scattered over it, would be once again duly appreciated. But for a constitutional dread of paradox, I would venture to hint that this is really the most appropriate and refined application of the glass worker's handicraft. There seems to me to be no comparison in respect of real refinement of beauty, combined with appropriateness to their use, between the five sisters in the north transept at York and the great east window in the same minster, both admirable of their kind; the former a very subdued pattern window, the latter filled with countless subjects from Scripture history.

The question between windows of grisaille and of figures of deeper colour has, indeed, practically received an unfortunate answer from

apparently remote circumstances. We have been feeling after church decorations of a higher order than cherubs' heads and royal arms over pulpits and gallery fronts, and for some reason, I know not what, we have been more courageous in the treatment of our windows than in the treatment of our walls. Though the Puritan of old broke every head in a window with a mitre or a glory upon it which he could reach with fist or halbert, his spirit, transmitted to our day, has been more tolerant of saints and bishops in glass than in any other material. We have decorated our windows thus because we have not so decorated our walls. It is inconceivable that if wall and window were equally at our disposal, we should paint our pictures on the window and leave the wall untouched. A transparent medium, and that by which the light is admitted, must be the worst possible; a wall reflecting the light must be the very best situation for a picture. Certainly we have set our pictures in the worst place, and left the best place bare. Well, it was better than none; but now we are beginning to perceive our mistake, and what will be the result? We shall have pictures on our walls, but, unhappily, they will not be brought out, but killed by more glaring pictures already peering through our windows. The resource will be to run into another error, to restore the figures on our walls to their due prominence, by overloading them with colour—that is, by sacrificing tone to brightness, the greater to the less, as we have already done on our windows, and so bad windows will exact bad pictures to out-tare them.

But now, given the wall pictured as it ought to be, what better handmaid can it have than a grisaille pattern window? When Raphael covered interiors with the highest productions of human art, did he ask for gorgeous figures, or for a soft grey light in the windows opposite? For which did he ask, even while all the glass employed was good? Much more, if we could have another Ary Scheffer to decorate our churches, would he tolerate our modern glaring figure windows over against his refined conceptions, when he might hope, even as a remote possibility, for the pearly light of the grisaille pattern? Again I ask for glass toned by a proper texture, that we may be worthy to employ the highest art for our wall paintings.

We have now reinstated grisaille glass in its proper dignity in itself, and as an accessory to other ecclesiastical decorations, but it has also lost its due place in figure windows. What can be more monstrous, as a work of art, than a cartoon for a window of high pretensions, into which scarcely a single piece of grey is admitted—grey, which harmonizes all colours, and bathes all true pictures in the dews of heaven. The more pretentious such cartoons are, the worse are they; and, bad as they are, they are tenfold better than the windows made after them, where all colour, being on a transparent medium, is intensified by transmitted light and where, therefore, if anywhere, grey, grey, more grey, is wanted to subsidise and harmonize the whole. In the best days of glass painting whole figures are often grey; drapery is grey, the ground, the surrounding buildings are grey; and on the grey glass is the best, almost the only painting—robes diapered with the greatest grace and care, faces flushed with almost microscopic delicacy, porches and pavements carried into the background with such perspective as the artist could command; and this is as it should be, for on coloured glass, all but comparatively coarse shading and diapering will be thrown away. Quiet, sober grace is thus thrown over the whole window. But now do not suppose that I ask for more modern white glass—it is simply and absolutely inadmissible; but I do ask for a large introduction of toned grisaille, when it can be had; and I do say that, without this, there can be no good figure window.

Whether or no the use of white glass was ever excessive I do not know, but I never saw even a perpendicular window in which there was too much, and I should desire more in most decorated windows. There is, however, a curious item in a contract for the glazing of the Beauchamp Chapel at Warwick (which I quote from memory), which provides that as little white or green glass should be used as possible. This indicates either a fear that too much white glass might destroy the effect, or a determination to get all that could be had for the money. I suspect that the almost total exclusion of white glass from high-priced windows at present arises from a fear, on the part of the glass-workers, that they will be suspected of "scrimping" if they do not give plenty of colour. But surely customers would not estimate pot metal before art in the production, or tawdriness before refinement in the result.

Having now claimed its proper place for white glass when white glass has become what it should be, I have exhausted the main subject of my letter. But one word more, to obviate a probable consequence of so frequent an assertion of the superiority of old over new windows.

I do not for an instant advocate a servile copying of old windows. Only let us emulate what is good in them, and do better, if we can do better, in everything else. Even in the particular thing which I most admire in them, it is quite conceivable that we may excel them. Our aim should be to combine the greatest possible trans-

* Read before the Northamptonshire Archaeological Society, by the Rev. T. James, to whom it was addressed in the shape of a letter by the Rev. G. A. Poole.

lucency with the smallest possible transparency. In its present condition, at least, old glass rather fails in translucency. Let us aim, at least, to excel old glass in this respect, but it must not be at the hazard of admitting the smallest transparency. If we do this we negative every other advantage. We laugh, perhaps, and justly enough, at the figures in the old windows; let us not imitate their grotesqueness or their bad drawings, but let us, at all events, escape the monstrous absurdity of figures that can be seen through.

What would William of Wykeham have said to his glass-worker, if he had seen a pair of magpies traversing the glory of St. Agnes, or trees waving in the water of St. Christopher's ford, or a chubby-faced school-girl peeping through the skirts of St. Ursula's garments?

LIVERPOOL.

It has been determined at no fewer than three thousand warehouses here to employ compressed air as motive power for lifting or hoisting purposes. Mr. J. Woore has a 24-horse engine, worked by such power transmitted through pipes half a mile in length, and lifting a ton, employed every day at his foundry and engineering works. A company has been registered, and an Act of Parliament applied for, in order to enable the scheme to be carried out with regard to the other warehouses.

It appears from the proceedings of this Works Committee that the use of the dock line of rails has been granted to twelve omnibuses at a charge of sixpence per journey, subject to certain regulations—one of the regulations being that the omnibuses should run at intervals of 7½ minutes, and another that no omnibus should approach another on the line within a distance of 300 yards.

It also appears from the proceedings of the Warehouse Committee that the water engineer would, in future, use every effort to secure a sufficient supply of water to the hydraulic machinery.

It has been resolved to provide better arrangements in the Canada Dock for the Drogheda Steam Packet Company's vessels.

A very fine block of warehouses has been commenced in Dale-st., and the foundations are far advanced.

The Medical Officer of Health reports that during the week ending the 18th of October, the deaths registered in Liverpool were 300 against a corrected average of 231 in the same week of the preceding ten years, this high mortality being still caused by the unusual prevalence of scarlatina and typhus. The total deaths in the parish were 182, and in the out-town-hips 118. The deaths from zymotic diseases rose from 104 in the previous week to 122, the corrected average being 72. Of these no fewer than 61, and 21 by typhus, &c. (average 10). The latter disease caused a higher majority than in any week of the ten years preceding, and scarlatina a higher mortality than in any week since 1848. Diarrhoea caused 17 deaths, hooping cough 6, croup 4, dysentery 4, measles 3, syphilis 2, and diphtheria 1. A man aged 65 died of English cholera, and a child two years old of smallpox, the medical certificate not stating whether vaccinated or otherwise. From lung diseases and consumption the deaths were 58—rather below the average.

The consecration of St. Mary Magdalene Church, Finch-street, took place on Saturday, 25th ult., at two o'clock. His Worship the Mayor attended. The sermon was preached by the Lord Bishop of Chester.

On the 8th ult. the first meeting of the Liverpool Architectural and Archaeological Society was held at the Royal Institution.

The secretary (Mr. Bradley) read the minutes of a meeting of delegates from various architectural societies, held in the rooms of the Architectural Union Company, Conduit-street, in July, at which it was resolved that the isolated character of the existing architectural associations throughout the kingdom rendered it desirable that an organization should be formed whereby they could be rendered united in their action, and whereby the establishment of new local societies in connection with them might be aided, and that an architectural alliance be formed. The consideration of the subject was deferred for a report from the Liverpool delegates. The council recommended that a vacant room be taken in the building, for the purpose of an architectural museum and modelling class. After some discussion it was agreed to defer the consideration of the recommendation until a future meeting.

Mr. Weightman (the president) then read the opening address, in which he showed the advantages conferred by societies like theirs upon the professions which they respectively represented and upon the public at large. He advocated the formation of a local architectural museum, which could only be worthily carried out by a cordial support from the public. It was to be hoped that the department of archaeological investigation would not be neglected by the members. He expressed his gratification that, notwithstanding the stoppage of the American cotton trade, the old dingy blocks of offices in Liverpool were giving way to more imposing and expensive architectural erections, especially those of Colonel William Brown, the New Exchange Company, and the Public Offices which it was hoped would shortly be erected on the corporation land in Dale-street. Through-

out the town, building operations of more or less magnitude were being prosecuted with activity; and when the Garston Railway was completed, the Sefton-street terminus would be the largest railway station in Liverpool. It would probably be hereafter supplemented by a station in the neighbourhood of Wolstenholme-square. He referred to the proposed dock warehouse extension and dock approaches; stated certain objections to the Wellington memorial; remarked that the proposed Liverpool monument to the late Prince Consort, as well as its site, were yet undetermined; alluded to the Exhibition buildings of 1851 and 1862 as marvellous evidences of the constructive abilities of the engineers of the day, yet regretted that the latter had been fixed upon so unfavourable a site and that the expense had prevented the great central dome, as designed by Captain Fowke, from being carried out. Although this was a time of commercial depression, it was gratifying to see that the building trades were by no means unemployed. Preston was raising a new Town Hall, from a design of Mr. Gilbert Scott, at a cost of £86,000; Hull was copying the example, and a committee of the Wigan town council had also reported in favour of the erection of a new Town Hall for that place. The society would do well, therefore, glancing with grateful retrospect at the past and hopeful forebodings of the future, to endeavour earnestly to make good the position it had gained, and, conscious of the responsibilities it entailed, pass round the watchword of their town arms legend, "*Deus nobis hæc otia fecit.*"

A vote of thanks to the President concluded the meeting.

IMPORTANT MECHANICAL OPERATION.

We are told that in America it is by no means an uncommon feat to lift or remove to a distance, by machinery, a block of buildings however large, but in these countries such an operation is judged not only improbable, but actually impracticable; there can, however, be no question but that we, Irish, English, or whatever we may be, can achieve both in science and art as much, if not very much more, than our Transatlantic brethren, and with less braggadocio too. The underpinning by concrete or otherwise of buildings, whereof the foundations or superstructure had settled, has been fully demonstrated as presenting no extraordinary difficulty; and, again, parallel walls alarmingly out of plumb have, in many instances throughout this kingdom, by a single and well known application, been drawn to the perpendicular with strict accuracy. It is, however, very unusual in the ordinary course of building contracts to expect an addition in height to the superstructure of a building without the removal of the roof and its subsequent replacement; but very recently such was required by specification and plans by the officials of Her Majesty's War Department, as regarded attics numbered 1, 2, and 3 respectively, in the Artillery-square of the Royal Barracks, Dublin. It seems that these attics or sleeping rooms, placed over a series of ten horse stables, were originally 6 ft. 8 in. to the wall plate, but this height being found totally inadequate even to afford ordinary facilities for respiration by the occupants, it was resolved to increase it by three feet. To remove the roof totally would have involved considerable outlay, and the expedient in question was consequently resolved on. A contract was entered into with Mr. Daniel Lawton, a retired officer of the Ballast Board (recently turning his practical experience independently to his own account), who, on Thursday morning last, commenced his difficult operation in the most scientific manner. The roof to be lifted, we should inform our readers, is about 200 feet in length, the span in clear being 22 ft. 9 in., and it is an ordinary king post truss roof. No less than twenty-two screw jacks were found to be necessary, and these were fixed in their proper places on the attic floor, after all had been made right and strong below. Every one at all acquainted with even the principle of such an operation must appreciate the difficulty to be surmounted in maintaining, during the process of elevation, not only the strictly horizontal line of the suspended roof, but the integrity of the several materials comprising it, viz., timber, slates, tiles, laths, plaster, &c.; however, we are much gratified to notice that, at one o'clock yesterday, the feat was finally accomplished, not a timber or slate, &c., being in the least disturbed, unless where necessary alterations to chimney stones, required by the plans rendered same necessary. The highest credit is, therefore, due not only to the practical skill of the contractor, but to the officials of the department, Messrs. George Ollis and Lynch respectively, in charge of the works. The attics are also being very much improved by the removal of obstructing cross walls and fire breasts, and now present spacious, lofty, and well-ventilated

apartments, a succession of tall, well-proportioned windows contributing most materially to their cheerful appearance, as they will, undoubtedly, to the health of the future occupants. Indeed, regarding the old arrangements, where the hammer beams of the trusses were actually on a level with a tall man's head, and light was obtained only through a few squat windows, about three feet square, it seems impossible to reconcile how such a state of things could, even in common humanity, have so long escaped attention. The soldier who risks his life for his country is worthy of a comfortable, healthy home, and it needs little argument to prove that the more comfortable and the more healthy it is made for him in time of peace, the better he is able to do his duty when summoned to the battle-field. We must note our disapproval of having these brave fellows lodged over horses at all, with only timber floors separating them; for, no matter how well-ventilated the stables may be (and those in question have no such characteristic), unhealthy atmosphere, if not offensive odour, must be generated.

ST. JUDE'S CHURCH—LAYING OF THE CORNER STONE.

On the 24th ult., the ceremonial of laying the first stone of the intended new church of St. Jude, at Inchicore, a suburb of this city, took place with somewhat more than the usual formality, the Archbishop of Dublin officiating, and being accompanied by the Chief Secretary, Sir Robert Peel, Bart., together with a number of clerical and other gentlemen. After some preliminary proceedings the silver trowel, of chaste design, and manufactured by Mr. West, of College-green, was presented to the Archbishop by Mr. Welland (one of the architects to the Ecclesiastical Board), who said—"I have much pleasure in presenting this trowel to your Grace on this happy occasion." His Grace then advanced to the front of the pavilion, and the stone having been lowered down by the ropes, was adjusted in its place on the prepared bed of mortar. The Lord Archbishop struck the stone with the mallet, and declaring it to be well and truly laid, proceeded to address the assembly in suitable terms, mostly inaudible, however. Sir Robert Peel next spoke at considerable length, and touched eloquently on topics which it would be outside our province to reproduce.

The doxology was then sung, and the proceedings terminated.

We reserve a detailed description of the building for the present, as we propose to illustrate it, but may add, that it will be a Gothic cruciform structure, designed by Messrs. Welland and Gillespie, Messrs. John Butler and Son being the contractors, and the cost about £4,000. Mr. David M'Birnie, J.P., generously presented the site.

CONVENTIONALISM IN ORNAMENT.

To make in stone a good conventional copy of a leaf requires no search into innate consciousness, but simply to have a leaf before you, to select such features of it as can be well represented in the material, and to omit those that cannot be so. You can give the outline and form, then let us have it accurately and truly—but the thinness, leave that to the metal-worker. You can give the general modelling; be careful to give this truly—but not the minutiae, which in the position your work is to occupy would be lost, or look flinching. We do not care for the jagged edges and veining on the surface,—give us the heart and spirit of the thing, the flow and the grace of the curvature. Do not let your leaves loll about, but be planted firmly on their stalks; and let the stalks be well rooted at their base, and spring as if they would go straight upwards until dragged down by the weight of the leaf, like a piece of whalebone with a stone at the end; then you will get a line like those in the draperies of the early painters of Italy. Attend to this, particularly in the stemming of the horns of foliage in the bells of your capitals, which are always right in old work, and always wrong in modern. And last, and not least, get gradation everywhere; for if you take sections through different parts of either leaf or stems of good class, you will find it never in two places alike, and always to have a clear, definite, and beautiful curvature; while you may cut across a modern stem in a dozen places, and hardly find the section vary, and not taken through the leaf generally resembles that through a dilapidated batter-pudding. The true and somewhat fair excuse for this hurry and want of precision in modern work is the competition, which forces a large amount of work to be done in a limited time and for a very small price. Now architects have the remedy in their own hands: let them be content with a very little ornament, if necessary, and seek quality instead of quantity,—there is plenty of talent among our carvers, they only want to be shown what is wanted, and fairly paid for doing it, and they will soon be able to do it. But then architects must be able to show them what they really do require, and must learn to design and model themselves before they can teach others.

Better however than the best of foliage, is art that tells a tale, and expresses something more than dumb nature, however well it may

be conventionalised; let us therefore determine to get as much as we can of sculpture and painting of a higher class into our buildings, then we can spare some of the foliage; but whatever we have, let us take care that it be of the best.

CELTIC REMAINS IN PARIS.

M. E. ROBERT has addressed two different papers to the Academy of Sciences on certain curious relics of past ages which have come to light in lowering the ground of the Rue d'Enfer, where it merges into the Boulevard de Sebastopol, and the adjoining botanical garden of the Ecole de Médecine; as also at another point, near the Vitry-gate, where labourers engaged in digging a well have recently found a great many objects of Celtic and Gallo-Roman origin, not excluding the flint implements which have so long engaged the attention of geologists as well as antiquaries. It appears that all this space was a Celtic burial-ground, since all the things found are of the kind generally met with in ancient graves. There are, moreover, erratic blocks, which had served to form enclosures round the bodies or ashes of the deceased, besides large tiles which formed the roofs of the tombs, and fragments of funeral urns and calcined limestones, such as are found in all Celtic or Gallo-Roman graves. M. Robert concludes that this deposit, as well as those he discovered many years ago near Marly, Mendon, Belleville, &c., belong to the same period, occupying, as they do, the left bank of the Seine; and he is further of opinion that there exists the greatest analogy between these and the deposit of St. Acheul, near Amiens, and he explains the existence of the flint implements at the latter place by supposing that the men who made them were in the habit of descending to the river side, and there using the flints for their purpose; but that, surprised by an inundation, they hastily retreated, leaving these implements to be covered by the sandy deposits of the waters.

THE WINTER GARDEN DESIGNS.

We are requested by Mr. de Ville, of Great Ormond-street, London, to state that the design marked "*hoc propono*," and referred to in our description as the production of Messrs. Green and De Ville, was the production of the latter gentleman only; Mr. Green, although at times associated with Mr. de Ville in partnership, having had "nothing whatever to do with the design in question."

Obituary.

HARRY D. GIBBONS, ESQ., C.E.

We very much regret, and are most unexpectedly called on, to record the demise of this esteemed gentleman and eminent engineer, which took place on the evening of the 24th ult., at No. 13, Dawson-street. Mr. Gibbons held the appointment of Engineer to the Kingstown Harbour Commissioners for the last twenty-five years, also one under the Board of Public Works for general purposes; in both which capacities his professional attainments, as well as his private worth, were highly appreciated. The deceased was in his sixty-fifth year; and, judging from his apparently robust constitution, he might naturally have been expected to number many more summers before he should "have shuffled off this mortal coil."

NEW PATENTS.

List of Letters Patent which passed the Great Seal on the 8rd, 10th, 17th, and 24th October, 1862; Byrne and Lambert, agents, 4, Lower Ormond quay, Dublin:—

T. Silver, for "Improvements in governors for regulating the speed of steam and other engines."

S. Fielding and others, for "Improvements in valves and in apparatus for lubricating the same, and other parts of steam engines."

J. Collins, for "Improvements in apparatus for reefing ships' sails."

A. Clark, for "Improvements in the manufacture of revolving window shutters and blinds, in window sash bars and plates, also in apparatus used in such manufactures."

J. Langston, for "Improvements in the manufacture of portland cement."

Thos. Edwards and another, for "Improvements in letter receiving boxes and other like receptacles."

J. L. Perrin, for "Improvements in machinery for mortising wood."

R. Wedgwood, for "Improved apparatus for facilitating the saving of life in cases of fire."

H. Lumley, for "An improved rudder."

J. Aspinall, for "An improved apparatus for the safe conveyance from sea to land, of ships' papers, documents, money, and other valuables, when wrecks and other casualties occur at sea."

C. Schlickeysen, for "Improvements in machinery for moulding bricks, tiles, pipes and turf."

T. Buckney, for "Improvements in portable 'tell tale' time-keepers."

T. Lemaistre, for "Improvements in privies."

Varied Items.

The new Church of St. Mary Star of the Sea, Glenvar, Co. Donegal, and dedicated on Sunday last, is, according to the *Freeman*, in the Gothic style (Early English), and consists of nave, chancel, and sacristy. The entire length is 82 feet; width of nave, 39 feet; width of chancel, 20 feet; and from floor to apex of roof, 40 feet. The roof is open with thorough ceiling between the rafters; it is divided into six bays by the principals, which start from well formed corbels; timbers stained and varnished; walls finished in ashler; the altar is a beautiful design, supported on four graceful columns, resting against a reredos of seven compartments; the central compartment, rising higher than the others, forms a canopy for the tabernacle, and is surmounted by a cross. The panels in the reredos and altar are filled in with enamelled work, executed by Messrs. Barff and Co., Dublin. They contain symbolic representations of the Redeemer and Blessed Virgin, and other monograms. There is a triplet light in the eastern and western gable, with four single lights on either side of the church. This very pretty church has been built at the comparatively small expenditure of £700. Edward Deeny, of Rathmullen, executed all the carpentry, including the altar, which is of wood. Mr. Philip Doherty, Derry, supplied the cut stone.

Arrangements are in progress, and nearly completed, for the immediate commencement of the works on the proposed line of railway between Athenry and Ennis, known as the "Athenry and Ennis Junction;" whereby speedy and direct communication will be established between Munster and Connaught.

Mr. Payne, late of the Waterford and Limerick Railway, was, on yesterday, appointed traffic manager of the Dublin, Wicklow, and Wexford Railway, in the room of Mr. M. Harris.

Mr. Noble has been commissioned to execute the statue of Prince Albert for Salford, which will be pendent to that of the Queen in Peel Park.

Persons who are not faithful to their employers will seldom do well for themselves, and are not fit to do business for themselves or any one else. Boys should therefore seek to do well by their employers, and they will themselves be the gainers in the end.

In this age of speed, when we travel thirty miles an hour, are we less impatient to be at the end of our journey than when we travelled ten? In this age of cheapness, are we more satisfied with our bargains, or more benevolent with our surplus than formerly?

It is proposed by the Dublin, Wicklow, and Wexford Railway Company to construct a branch line from the Wooden Bridge at Wicklow to the town of Shillelagh, about sixteen miles distance, and passing through the towns of Blackstown, Newtownbarry, Tullow, Carnew, Coolatin, and Tinnahely. The estimate made by Mr. Lefanu, C.E., amounts, for the whole sixteen miles, to the sum of £64,000, or at the rate of £4,000 a mile.

Miscellaneous.

A MODERN PARISIAN HOUSE.—Imagine a building six storeys high, one of which would be in the roof, constructed of the beautiful white stone technically called *pierre tendre*; the great portal in the middle, which generally runs up some twelve or fourteen feet, the architraves round the windows, and the cornices at top, being beautifully adorned with enriched mouldings, arabesques, and festoons. The balconies are protected by elaborately designed iron railings, often partially gilt. The upper storey is on the roof of the construction, commonly called a *mansard*, and is covered with zinc, the windows of which are of the form technically called *lucarnes*, and are also richly ornamented in the same metal. Let us now suppose we enter the spacious doorway of one of these dwelling-houses, which introduces us at once into a courtyard sufficiently large for a carriage to turn round in with ease—a pleasing contrast to the grave error lately committed in London, where the court is narrow, and in which the air stagnates, and light can scarcely penetrate. On the right and left of the corridor leading to this spacious courtyard will be found the foot of two grand staircases. These ascend through all the floors, and form the means of communication to all the better apartments—an *escalier de service*, or servants' staircase, being provided in the courtyard leading to the roof, in which their apartments are usually placed. Each flat or floor is provided with all the domestic necessities of modern refinement and comfort, regardless of original cost. The decorations of the *salons* are generally in good taste; not only the ceilings, but the panels of the doors are enriched and are for the most part painted white and relieved with gold. The handsome mirrors found in all the apartments, together with the richly carved marble chimney-pieces, are the landlord's property, and let with the fabric. The floors are of the old-fashioned bright oak *parqueterie*, and briefly, it may be observed that the wood-work in the modern buildings is confined to the joinery; the joists being

of rolled iron, fitted in between with bricks, and perforated for the sake of lightness. The glazing of the windows is usually executed in single sheets of plate glass, and the sashes are not hung to slide, as with us, but with hinges like our doors; and they are fastened with elegant *espagnolettes*. The same style of decoration is employed up to the fourth and sometimes to the fifth floors. The rent of these flats, or suites of apartments, varies from £150 to £600 per annum.

THE MARBLES OF IRELAND.—The marbles of Ireland are a valuable, and, I regret to say, an unworked treasure. These, like some valuable ornamental stones in Ireland equal to Portland, and of the same class, are likely to be comparatively disregarded until an increased circulation of money leads to the people requiring more ornamental works in the inside and on the exterior of their dwellings. At the same time, it may be well to say that, for all kinds of marble, except pure white, Ireland cannot be surpassed in any part of Europe. There is a marble at Dunleway, in Donegal, which, except for its approaching a dove colour, might compare with the marbles of Carrara. It is a mere question of taste, however, and one on which there ought to be room for difference of opinion, as to whether the colour of the Irish were not more chaste and elegant than that of the Italian marble. But there can be no controversy about the black marbles of Kilkenny, Cork, Galway, &c., the green and variegated of Connemara, and the several kinds of so many shades to be found in Armagh and other parts of the country. It is probably one of the most cheering signs of the day for Ireland that notice is being taken of her marbles, and augurs well for the future that a trade is springing up between several parts of Great Britain and this country for these valuable resources of industry. If capital were expended to a sufficiently large extent, and that along with the supply of chimney-pieces, &c., marble were worked into personal and household ornaments, there can be no question but the marble business of Ireland might be made to occupy a high position as a branch of trade.—*D. E. Mail.*

BALLYBOFEY NEW MARKETS.—We are glad to find that Ballybofevy will shortly possess first-rate market accommodation, thanks to the liberality of Colonel Pratt, the lord of the soil, and his agent, Francis Mansfield, Esq., of Ardummon. The new markets will not be inferior to anything of their kind in the North. They occupy a frontage of one hundred feet to the principal street, depth 103 feet, and will present a pleasing elevation, designed after the Italian style, with a Town House or Exchange in the centre, with spacious entrance gates on either side. The markets are provided with a range of excellent covered sheds, supported on metal columns. In the centre of the area will be placed commodious offices, a weighing machine, and every requisite necessary for the convenience of buyer and seller. We are glad that this accommodation has been provided; for Ballybofevy being one of the termini of the Finn Valley Railway, the town must of necessity become a deposit for agricultural produce after the opening of the line, which is expected very shortly.—We should add that the designs for these very handsome markets and buildings were supplied by Mr. J. G. Ferguson, of the firm of Messrs. Frazer, Ferguson and Frazer, of Shipquay-street, Derry; and the works are being carried out in first class style by Mr. McClelland, of the Strand, the eminent builder.

NEW PRESBYTERIAN CHURCH AT RAPHOE.—The exterior of the building presents an exceedingly chaste and elegant appearance. The front elevation is in the Roman Ionic style, and the proportions are well preserved throughout all its details, the capitals on the different columns being particularly good. The extreme width of the front is 46 feet, its altitude from the floor of basement story 51 feet. The raking mouldings on pediment are carried round the flanks of vestibule at such a height as to effectually conceal the roof of the building when viewed from the front. The church is entered by two doors from a spacious vestibule, which crosses the entire width of the building. The dimensions of the edifice are 56 feet long, by 40 wide, and 25 feet high. It contains sittings for about 400 persons. The interior of the church is remarkable for its exceedingly light appearance. On each side of the pulpit is a plain stained glass window. These have a very pleasing and beautiful effect, and were presented to the congregation by one of the members of the committee. The pews are rather below the usual height. They are roomy and comfortable, furnished with book boards, and capped with mahogany. The pulpit is built of solid mahogany, and is placed on a platform, which is reached by a flight of stairs on either side, the stairs being railed in with handsome balustrading of cast metal. Immediately in front of the platform is a seat, which has been erected in a very tasteful manner for the use of a choir, the upper range of its panelling being executed in fret work, neatly designed. The apartment in the basement storey are 11 feet in height, and comprise a school-room, 40 feet long by 38 wide; a class-room, 26 feet long by 16 wide; a vestry, 16 feet long by 13 wide; and a store-room, 40 feet by 10. These rooms are well lighted and ventilated, and are extremely suitable for the purposes intended. The designs for this edifice were also given by Mr. John G. Ferguson, of the firm of Fraser, Ferguson, and Fraser, of Londonderry. Cost £1600.

RUBENS A SCULPTOR.—Mr. Holt, a gentleman residing in Clapham Park, is in possession of a small bas-relief, measuring nine inches in height by seven wide, sculptured in alabaster, enriched with gold, and representing the "Adoration of the Magi." Its owner assumes it to be the work of Rubens, and has been at the expense of publishing a book (for private circulation only), with photographic illustrations, in which he brings forward certain evidence of a presumptive kind to support his opinion; the weight of such evidence being that the foreground of the bas-relief bears a resemblance to Rubens' picture at Malines of the "Adoration," and the background to his picture of the same subject at Berg St. Winox. Mr. Holt considers that the bas-relief was sculptured by Rubens when in Venice, studying the works of Tintoretto, about 1600-1; and that he afterwards availed himself of it in the compositions referred to. Tintoretto, it is well known, made numerous models in wax and chalk; and not improbably, too, in more enduring substances. Mr. Holt possesses one of the "Adoration," which he attributes to the Venetian painter; it is, therefore, not impossible that the Flemish artist may, in his early years, have adopted the same course. Both bas-reliefs are certainly fine compositions; and, as such, are indicative of the styles adopted by these artists respectively in their pictures. Biography is silent on the subject of Rubens being a sculptor; but the existence of Mr. Holt's bas-relief, though by no means a convincing proof to our mind, furnishes matter of speculative inquiry. The work, we are told, "was obtained in the Netherlands soon after the peace of 1815, by an English lady of rank and distinguished taste; and was retained in her family until it passed, through the medium of a stranger, to the present possessor." In directing attention to it we may, perhaps, be the means of drawing forth some remarks on the subject.—*Art Journal.*

CONSECRATION OF LISLIMNAGHAN CHURCH, COUNTY TYRONE.—This new church, built about two-and-a-half miles from Omagh, was consecrated recently. It is built in the Early English style after the plans furnished by the Ecclesiastical Commissioners, has been called "Trinity Church," and is intended as a memorial of the late George Spiller, Esq., by his mother, at whose sole expense the church has been erected and endowed. The edifice, including a present of silver communion plate, will cost about £1,600—in addition to which, this pious and highly esteemed lady has provided an endowment of £200 per annum, besides erecting a most comfortable glebe-house and offices, with four acres of land attached, for the benefit and use of the incumbent. The church and burying-ground attached occupy an additional acre of ground. It contains several mural tablets, erected in memoriam of members of the benevolent foundress' family. Mr. Hardy, diocesan architect, superintended the erection, Mr. Mullan being the contractor.

COMPANIONS.—He must be superior to the common herd of men whose daily companions are, not the vulgar, ignorant, and degenerate, but the greatly-gifted creatures who have long since passed away, but who still endure on earth in their imperishable works. He who loves the society of the patriarchs and apostles, listens with transport to the martial lays of Homer, hears enraptured in his mental ear the sublime and masterly eloquence of Demosthenes and Cicero, Burke, Curran, Grattan, and Brougham; he who can appreciate Plato, Aristotle, Seneca, and Socrates, can worship in the temple where the busts of Milton, Tasso, and Dante have been enshrined, whose spirit can hold communion with Shakspeare, Echylus, Euripides, Sophocles, Scott, and Byron, whose mind has sympathies in common with Felicia Hemans and Letitia Landon, and the many gentle and almost inspired creatures who elevate our souls to a better and nobler sphere than this earth of ours—he, though left in solitude, has joys which cannot be exhausted, joys vastly surpassing the poor pleasures of this world.

ITEMS CONCERNING THE LIFEBOAT INSTITUTION.—Some time ago a lady was on a visit, on board a friend's yacht, on the Irish coast. A fishing-lugger came into collision with the yacht and capsized it. The lady and her friends were instantly thrown into the sea, but she was fortunately saved by the very gallant exertions of her friend, who dived after her and brought her safely to land. As a "thank offering" she gave £300 to the National Lifeboat Institution, to enable it to station an additional lifeboat on the Irish coast. That lifeboat was placed at Carnsore, on the coast of Wexford—a very dangerous point, and a very poor locality. In the course of the ensuing winter a fearful wreck occurred off Carnsore; that of the bark "Guyan," of Glasgow. Intelligence of the wreck having been conveyed to the lifeboat station, the crew of the lifeboat were called up about three o'clock in the morning, and the boat immediately started on her mission of mercy. Owing, however, to the dreadful state of the roads from heavy rains, and the circuitous route of many miles that the boat had to travel, it was nearly nine o'clock before she reached the scene of disaster, notwithstanding that no less than seven horses were employed to draw her. The lifeboat had then to be taken off her carriage and lowered down a steep cliff

eighty feet in height. This was successfully accomplished, and the boat was then launched through a high surf and proceeded to the wreck. On arriving near the vessel, however, the force of the wind, tide, and sea was so great that it was found impossible to reach her; the boat was therefore anchored for a while to rest the crew. Another attempt was then made, and the whole crew, numbering no less than nineteen, were then safely got into her and conveyed to the shore which was reached after more than five hours severe exposure and exertion. The brave fellows who man our fleet of lifeboats receive 10s. per man in the day time and £1 each in the night. If the service is of an extraordinary character they are paid double the amounts. Last year the rewards for saving lives from shipwreck, both by lifeboats and other means, granted by the National Lifeboat Institution, amounted to £1,287, in addition to 39 silver medals and 17 votes of thanks inscribed on vellum. Besides this, it expended £11,000 on lifeboats, transporting carriages, and boat houses.

ST. PETER'S CHURCH, PHIBSBOROUGH.—The new building in course of erection in connexion with this church consists of a transept, chancel, sacristy, cloister, and a series of chapels around and on either side of the high altar. The stand point for a synoptical view is beneath the lantern or central tower, and from this spot the tower itself is the chief commanding object. Supported by the four great intersectional arches of nave and transept, it is open, upwards, to the height of 125 feet, and divided into three distinct storeys. The first consists of four massive columns supporting the four intersectional arches already mentioned, with their respective spandrels on either side, charged with large medallions, designed to represent the eight great Greek and Latin doctors of the early church. The second story is an arcade, consisting of twenty arches, which, with their shafts standing upon richly-moulded bases, and crowned with gracefully-wrought capitals, are exceedingly effective from beneath. This arcade is surmounted with a landing supported on bold projecting corbels, and to be fronted with an elaborate balustrade, for the service of the windows of the lantern. The third storey is the lantern proper. It is to be pierced with eight two-light windows, set in deep-moulded jambs, with tracery heads. This is to be the glory of the church, imparting, as it does, to a Gothic building the grandeur and majesty of the dome in Roman architecture. Having surveyed the central tower, the eye is carried forward to the chancel. This portion of the building is arranged according to a mode of treatment very general in continental churches. It is enclosed within a row of columns arranged in polygonal form, and surmounted by a beautiful arcade of nine arches. Over this arcade is projected a continuous tribune, intended to give access to the clerestory windows, and to light up the chancel at night. Then rises the clerestory, pierced with windows of elegant design, and so arranged, in reference to the arcade beneath, that the whole is made to consist of ornamental details, presenting quite a panoramic effect. Behind the columns, enclosing the chancel, runs a processional path beneath a transverse arcade, which conduces from the sacristy to the several chapels. The sacristy is a noble apartment, in full keeping with the main structure, having attached to it a graceful cloister leading from the presbytery to the church, and which will serve likewise for marshalling processions for the great services of the church. The transept ends are treated very effectively. At the height of twelve or fourteen feet from the floor on both sides there are double arcades extending the entire width, over which are two glorious rose windows of varied design, and beautifully executed. The various parts of the building group together so as to give to each other mutual support, combining thereby strength and solidity with artistic beauty and effect.—*Freeman.*

BOOKS IN THE PRESS.—Shortly will be produced by the eminent publishing house of Atchley and Co., Great Russell-street, London, W.C., the following works, viz.,—"On Mining, Engineering, Land and Railway Surveying," by H. D. Hoskold, mining engineer and surveyor (to subscribers before published, 25s.); "Practical Treatise upon Mechanical Engineering (when published, 26s.) with ninety-one woodcuts, by Francis Camplin; "Railways in the East," by W. Davis Hoskold (price £3 3s.), in French and English languages.

Mr. J. J. LYONS, of 26, Lower Gardiner-street, Dublin, Architect, has been appointed Agent for Ireland for Messrs. Clark and Co., of Gate-street, Lincoln's-Inn-fields, London, the eminent patentees and manufacturers of revolving shutters, brass sashes, stall board plates, &c., &c. A model of Messrs. Clark's newest patent, which is remarkable for its simplicity (all gearing being dispensed with), may be seen, and price-books obtained, at Mr. Lyons' office. Parties can have estimates from Mr. Lyons by forwarding particulars and tracings of the situations to which it is proposed to adapt the shutters.

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Slates,	Pipes, all kinds,
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The Dublin Builder.

VOL. IV.—No. 70.

A VISIT TO THE WILTSHIRE QUARRIES.*

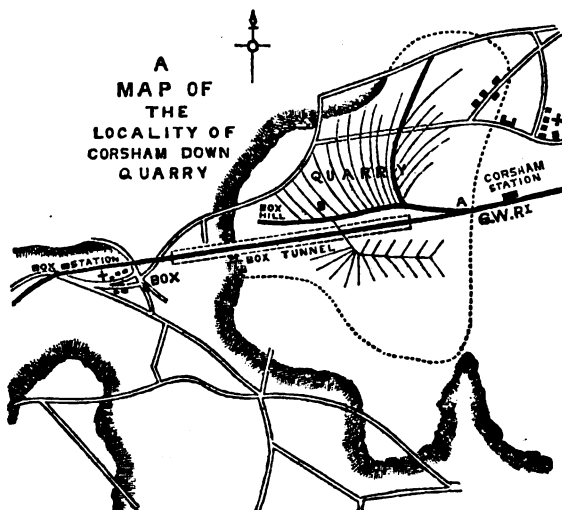
WHAT building material commonly known as "Bath stone," but which, in truth, is entitled to a more comprehensive designation—the strata in Somersetshire, wherein the city of Bath is situate, being in very inconsiderable proportion compared with those in Wiltshire—has of late years been so extensively sought after throughout the kingdom, for the finer departments of architectural productions, that some particulars of its nature, and the manner of its working, will be read with interest (may we hope with instruction too?), and by none more than by the many who now employ, or hereafter purpose to employ it in Ireland.

Bath stone (for such, for the sake of abbreviation, and in deference to custom, we shall continue to call it), is of the *oolitic limestone* class, and various qualities are found in the respective districts of Box, Corsham, Farleigh, Murrhill, Ampton, and Combe Downs, comprising in all an area of about two square miles, and presenting, in their chemical analysis, but comparatively trifling variations, that of the Corsham, made some years since by the eminent Professor Miller, at request of the proprietors, Messrs. Randell and Saunders, being as follows, viz. :—

Specific gravity	2.45
Carbonate of lime	96.60
" magnesia	1.57
Silica	0.30
Peroxide of iron, with a little alumina	0.90

99.97

That our readers, personally unacquainted with the locality, may the better understand its geography, and travel over it with us in imagination, we here introduce a map, by which it will be seen that



the "Box" ground and "Corsham Down" quarries (situated about six miles distance by railway from the city of Bath, and to the consideration of which we, for the present, confine ourselves), are in immediate contiguity with the Box Tunnel—one of the late Brunel's

* It may not be inappropriate here to remind our readers that in previous numbers of this Journal we communicated interesting facts connected with a neighbouring town and seaport of high commercial importance, and distinguished both for its archaeological interest and its scenic beauties—Bristol, ancient and modern respectively; and occasionally, too, have we referred to the notable peculiarities of that ancient and famous Roman City, Bath, now and for many years past the favourite resort of England's aristocracy and fashion; but contented with merely re-viewing on this occasion for private gratification these scenes of earlier associations, we pass on to the immediate and more practical purpose of this article.

greatest engineering achievements—on the Great Western Railway; stations, corresponding in name with each being placed at the respective extremities. This tunnel is *one mile and seven-eighths in length*, of elliptical section, and truly noble proportions, sustaining an average superstructure of 100 feet or more of solid earth; and almost parallel with it for a distance of *one mile and three-quarters* (being a little short on the west side), is the main artery of the Box and Corsham quarry workings. This communicates (at A on map) with the railway by a gentle curve, and facilities are thereby presented for the transmission of the produce of these quarries to any of the numerous stations on that vast trunk line and its tributaries; it being so arranged that tramways of corresponding gauge (seven feet) with that of railway, convey the laden trucks from the cranes and platforms in the interior, down an incline, to a siding convenient to the entrance at Corsham, and which, when emptied, are returned to the source of supply by horse power. In this work, about 46 trucks, the property of Messrs. Randell and Saunders, and exclusive of those belonging to the railway company, are employed.

Before proceeding further, we should inform our readers who—in Ireland, at least—are accustomed to "open quarry" workings, that those in question are "subterranean," meadow and pasture land occupying the greater portion of the surface overhead.

It will also be seen by the map that, from this main artery, which is in an easterly and westerly direction, branch northward and southward numerous headings or chambers, as indicated by the lighter lines, and that one of these crosses the railway tunnel about midway, which is thus explained. The "beds" (geologically so termed) rise 1 ft. 6 in. in the 100 feet westward, and, at the point in question, an altitude of 40 feet above the roof of the tunnel is attained, admittedly sufficient to save that structure harmless from the consequences of quarrying overhead, and securing, nevertheless, a means of communication between the workings at one side of the tunnel and the mouth of the main artery at the other.

Having so far explained, in a general manner, the geographical features, we proceed toward the interior, adopting A as our point of entrance, it being level with railway and the most convenient undoubtedly, for it is rather a perilous mission—at least for those unaccustomed—to descend the shafts some 150 feet by a steep and continuous flight of steps with surface of treads rendered slippery by the constant oozings and drippings from earthy roof and walls.

The main road is approached through a spacious archway, and traverses both the Boxhill and Corsham districts, the chambers branching therefrom, in the latter, averaging 25 feet in width, and the intersecting piers being about twelve feet square. Comparing these figures with those of the chambers at the "Box" end, which are, of necessity, only 14 feet in width, while the piers are of the same size—the respective sustaining powers of the two qualities of stone are very forcibly indicated, each pier carrying a weight of 4464 tons, equivalent to 31 tons per square foot; a valuable fact for the consideration of those who have, from time to time, addressed questionable communications to us relative to the weight-bearing capabilities of these materials, according to the version of their own experience. About 14 cubic feet of Bath stone weigh one ton.

At a level of five feet above the tramway or tramways (for there is a double line for some distance) of the main artery are seen other tramways of lesser gauge, viz., 2½ feet, with "trallies" or small vehicles on which the stone, as quarried, is transmitted from the loading or discharging platforms to the trucks; the average sizes of the blocks of the Corsham and the Box, respectively, being 24 and 20 cubic feet (though occasionally some have been got out weighing as much as 14 tons). It may here be observed that Messrs. Randell and Saunders adopt the very desirable precaution of marking each stone, so that the lettering may read with the quarry bed, which otherwise is not easily distinguishable, and an ignorance of which we believe lead to many results unfortunate to contractors. Also, that when objectionable beds are met with they are at once abandoned.

Penetrating some hundreds of yards into these subterranean chambers, it would not be unreasonable to expect that inconvenience to the respiratory organs might, as a consequence of insufficient ventilation, be experienced; but not so here, for the shafts provided are of ample dimensions, and, together with the upward current obtained through the entrance at Corsham, ensure as pure an atmosphere

The above and 7 following won 262 awards, which, in number, kind, and degree of merit, will challenge any previous examination in Art held in this country for any bygone period.

Successful Pupils competing in original Oil Painting for the Taylor Prize:—

Henry Crowley .. £30 | William Perry £10

Of efficient and accredited teachers we may point to the list published by the Government, showing the names of men sent to teach Art throughout the kingdom, but all trained in the Dublin School of Art within the last ten years:—

John Kennedy ..	At Dundee.	— Frazer ..	At Clonmel.
Joseph Kennedy ..	At Leeds.	J. Hely ..	At Dublin.
N. Brophy ..	At Limerick.	J. Brennan ..	At Cork.
T. Holmes ..	At Devonport.	C. Ryan ..	At Leeds.
F. Collier ..	At London.	J. Lord ..	At Newcastle.

Of those not employed in Government schools, we have many in London and in Dublin, some of whom we can call to mind:—

A. Mayne	E. Ryrie	F. Walker	W. Murray
A. Pike	F. Colles	S. Banks	L. Brady
E. Keightley	W. Craig	M. Alment	

and many others who give private lessons, and others who unite drawing with other tuitions.

We shall deal with the concluding portion of this subject in a future article.

THE DUBLIN EXHIBITION PALACE AND WINTER GARDEN.

A DECISION has been arrived at in this matter, though somewhat different in its nature to what many expected, inasmuch as that the committee do not award *either* of the premiums offered, but they accept the design which came nearest to their requirements, and appoint the author to furnish the necessary working drawings, and to supervise the work. The choice has fallen on the design catalogued "C," and distinguished by "a blue star," the author being Mr. Alfred G. Jones, of Molesworth-street, architect. We understand that an estimate for the erection of the building according to these drawings for £40,000 (being £5000 more than the amount specified in the instructions), from an eminent firm in this city, was procured for the committee by Mr. Jones, in confirmation of the architect's own undertaking as to the expenditure. The absence of this guarantee, even for a reasonably approximate amount, was held fatal to the claims of the other two designs, by Messrs. Rawson Carroll and E. H. Carson respectively, which were selected out of the lot for further consideration, and admittedly displayed very great merit.

As we observed in a previous article relative to this competition, we think that the committee acted imprudently; *first*, in limiting the expenditure to so small an amount as £35,000; and *secondly*, in imposing on the competitors the necessity of providing, on their plans, certain accommodation which by no possibility could be executed for the sum stated; and for that reason, therefore, Messrs. Carroll and Carson especially (their expectations of success being raised almost to the last moment), may somewhat justly feel themselves aggrieved in at least not receiving some consideration, either as premium or otherwise, for their very handsome and expensively-produced drawings, rendered valueless by the conflicting character of the instructions. The citizens of Dublin will, however, have much reason to congratulate themselves on the acquisition to our local architecture of the beautiful and appropriate building designed by Mr. Jones, which is highly creditable to that gentleman's abilities. Particulars of the features and arrangements may be found in our number for the 1st of October last, and as some modifications are at present under the consideration of the committee, we shall have occasion again to describe them, simultaneously with an illustration, which shall appear at the earliest possible moment. We doubt not—and feel that the sentiment is shared in by even the disappointed competitors themselves—that the committee exercised their judgment for the securing of the best results, and that there is not the slightest imputation of partiality against them, either individually or collectively—an honourable exception, truly, to the rule of modern competitions.

MONUMENTS.

Of all the various feelings which, in places where the dead lie, or their memorials are erected, follow the solemn conviction of the uncertainty of life, and the feebleness of the human endeavour, almost the first to arise on the mind of a thoughtful man is the sense, often as ludicrous as it is pathetic, of the disproportion which exists between the characters of those who have passed away, and the monuments by which their names are preserved. In such scenes grief rests upon flattery, and falsehood becomes amiable by association

with charity. One was heedless, idle, vicious; his relatives pronounce him a kind father, and a faithful husband. Another spent his life in the acquisition of money, careless by what arts he grew rich; the visitor is informed that he was just, upright, and benevolent. There is no necessary correspondence between the inscriptions upon the tombstones and the lives of those whose graves they mark. The great are forgotten, while the little are remembered. Thus, many names become known after those who owned them have ceased to exist. In the case of some who deserved well of their country, private affection has often to take the place of public gratitude, and an unpretending slab frequently recalls the memory of one who deserved a lofty monument. Friends of families may mourn, but large communities seldom give way to grief. We begin to doubt whether there can be such a thing as national sorrow. A great man dies, and a few bells toll for a while; a few churches are draped in black, a few shops are closed, his death creates a "sensational;" but in a week or less all is forgotten, business goes on as ever; the multitude whom his voice enthralled, or his writings instructed, miss him from the scenes in which he was the most conspicuous figure, but his place is soon filled up, and despite his genius, he is scarcely ever lamented outside his own household, and the circle of his friends.

As far as the dead are concerned there is little need to argue that they require no such honours, and the greater the men are who have passed away, the less need is there of such weak testimony to their merits. Who does not remember Milton's beautiful epitaph upon Shakespeare, applicable, though of course with some reservation, owing to the super-eminence of his genius, to other illustrious men—

"What needs my Shakespeare for his honour'd bones
The labour of an age in piled stones?
Or that his hallow'd relics should be hid
Under a stately pyramid?
Dear son of memory, great heir of fame,
What need'st thou such weak witness of thy name?
Thou, in our wonder and astonishment
Hast built thyself a living monument."

The fact, however, that such memorials do not increase the reputation of men of great genius, does not relieve the country of their birth from the duty of commemorating their greatness. The statue of a poet, an orator, or a philosopher, may be worthless as far as the man himself is concerned, but viewed in another light, most useful. He is gone, but his image stands where all may view it; his form and features may be remembered, then his words and deeds, and then by a happy association of ideas which proves that he is not dead to those who gaze upon the bronze or marble that preserves his lineaments, his history comes to mind, and his influence still aways the thoughts and moulds the conduct of men; but it may be said that the influence of the great dead cannot be increased by such memorials.

All this may be so true that every one admits it in theory, and no one takes the trouble of acknowledging it in practice. In no country is it so true and so easily of application as in Ireland. Great Irishmen are respected more in the countries to which they have migrated than in that which gave them birth. How is it? Is it on the supposition that "no good thing can come out of Nazareth?" Is it a natural consequence of the Union which leads some of our ablest men to the wealthier country where they will earn more money, and where, after a while when they have become domiciled, they discard the name of Irishmen for ever? Or is it the result of the ignorance of the people who may not be able to perceive the greatness of those who grew to manhood amongst them? In any case one fact is clear, that Ireland possesses a list of great names which, considering her population, is larger and more distinguished than that of any other nation; and men whose genius, when we regard the circumstances under which they grew up to maturity, may well astonish us. Burke, Swift, Goldsmith, Sterne, Grattan, Plunkett, O'Connell—men of whom the world is proud, and Ireland forgetful. Not one of these has obtained the honour of a public monument in his native land. Burke, who laid the foundation of Irish liberties, has been sleeping for three score years in his quiet grave at Beaconsfield. O'Connell, the darling of the people, at whose will vast multitudes wept and laughed alternately, is only now remembered after the lapse of fifteen years, by those for whom he obtained the sacred right—long withheld—of holding and professing their religious opinions, no man making them afraid. Swift, one of his country's boldest champions in troubled times. Where are their memorials? One Irishman only is honoured with a monument—the poet Moore. Visitors from England drive from Westland-row station, through College-street, and pass by the Bank, but their attention is divided between the beauty of the building which witnessed the last of Irish independence, and the pre-eminent and fantastic ugliness of the statue which commemorates one whom they regard as the representative poet of Ireland. What a terrible burlesque of Moore. It would require his own caustic pen to do full justice to the taste which purchased such a statue, and which placed it there. Instead of looking at it with fond remembrance of the poet, the passer-by looks at

it, and laughs. Who can admire the Bank with that object to scare them from the place. We are to have a monument to Burke (the only man, as Coleridge says, who saves us from shame at the mention of Demosthenes and Cicero). But how is it to be paid for? Will the committee have to continue begging for many months, as was the case with those who raised funds for the Goldsmith statue, for a sum of £50 or £60, to complete the sum required? A year will soon have elapsed since the proposal to erect a monument, to commemorate the greatest and best of Irishmen, was made to the public, and during the months which have passed over the munificent sum of £2,000, or more, has been subscribed. It is pleasing to observe that gratitude to O'Connell has not altogether died out, and that after a period of fifteen years his great services were remembered. As an orator, to whom may he be likened? Surely to none that England or Ireland has produced. Others may dazzle senates and courts; he controlled the multitude, as if they were one man, and yet any one who considered him a mere mob orator would be grievously mistaken. It is difficult, indeed, to form a correct estimate of his character, but in future years he may be better comprehended. To us he seems to be the greatest figure in Irish history. His monument, wherever erected, should be worthy of his fame.

To do honour to the memories of great men is so pre-eminently a national duty, that the country which neglects it deserves to suffer from the reproaches of strangers, and the indifference of her sons. Not alone by erecting memorials of stone is this duty to be performed. It is best discharged when the glorious examples of the dead are followed, and the lesson of their lives laid to heart. But when we see public monuments, we may assume that public benefactors are not forgotten. Hereafter in our streets we may behold the images of those whose names were for a long time the only bright spots in our history, and shall be able to point to them, and tell the stranger these are the monuments of men belonging to our race and country, who have attained imperishable fame. Some for their poetry are remembered, some for their eloquence, all for their love of the country in which they were born. They needed no such records of their greatness. With more or less success, according to their genius—with more or less of failure by reason of human infirmity, they did the work which was given them to do. We have erected these memorials to show that, while profiting by their labours, we do not forget their examples, but remember their patriotism with gratitude, and their genius with pride.—*Saturday Magazine.*

THE LIVERPOOL ARCHITECTURAL SOCIETY.

On the 19th ult. the usual fortnightly meeting of this society was held, Mr. G. Goodall occupying the chair. Mr. Higgins was prevented by illness from reading a promised paper. Mr. Heffer exhibited a sketch of his for a memorial to be erected at Hastings to the late Prince Consort, relative to which a conversation ensued. Remarks were also made by several members respecting the proposed equestrian statue, at Liverpool, of the Prince, a model of which had been submitted by Mr. Hornycroft, sculptor. The new Exchange buildings also formed a subject for discussion, and hopes were expressed that the preliminary details, as regarded the terms of the competition in which one thousand pounds is to be given for the best design, would be carefully arranged.

GLASGOW ARCHITECTURAL SOCIETY.

At the annual conversazione and exhibition of this society, held recently at the Scottish Exhibition-rooms, Mr. James Foucher, Vice-President, in the chair. The report was read by which it appeared that 168 members had been enrolled since the formation of the society in 1858, that 22 members had been added during the year, the total at present on the roll being 129. The premiums offered to assistant architects and apprentices for designs for a monument and villa respectively, were awarded to the competitors. It appeared that financially the society was in a healthy condition. The report was unanimously adopted.

THE ULSTER HALL, BELFAST.—THE INAUGURATION OF THE ORGAN.—The Directors of the Ulster Hall Company have now completed the arrangements for the inauguration of the organ, the gift of Andrew Mulholland, Esq., J.P., D.L. On Wednesday evg., the 17th inst., there will be a grand concert. Concerts will also take place on Thursday morning and evening, the 18th inst.

RAILWAY FROM LONGFORD TO SLIGO.—This line was yesterday inspected by Captain Rich, the officer of the Board of Trade, accompanied by Mr. G. W. Hemans, the Chief Engineer, Mr. Falkiner, the Resident Engineer, and other gentlemen connected with the Midland Great Western Railway. The line, which is 58 miles in length, was fully approved as fit to be opened for public traffic, and it is intended to run the trains on the 1st or 2nd inst.

ADDRESS OF THE PRESIDENT OF THE ARCHITECTURAL ASSOCIATION AT THE OPENING OF THE SESSION

On such occasions as the present, our view naturally ranges over a somewhat broader horizon than that which closes round our own sphere of action. We remember that we are an institution of respectable age, especially if age is to be reckoned by the march of events, and the progress that has been made in the profession since our establishment, in which progress we have had an active and useful share. But while we congratulate ourselves upon the past and present, our business is with the future. The architecture of to-day has been determined by events, some of which are now long past, and whose influence will far outlast our time; but the architecture of the future will be, in a great measure, what we shall make it. We begin, then, by urging upon our members the acquisition of a thorough knowledge of the art of past ages, as a preparation for future progress. We strongly advocate the study of professional practice as it now exists, but we do not profess to remain satisfied with it; if we did, our association must soon cease to be. There is little room in the world for societies intended to maintain things as they are; every body of men must have an active principle as a bond of union, and cannot properly seek to remain unaffected by external or internal influences. We desire to cultivate a habit of looking somewhat in advance of the present time, both in the projects of public usefulness in which we are called upon to assist, and in the quality of art which we are expected to produce. It is necessary to avoid leading our younger members into a morbid desire for novelty, but it is not less desirable to preserve them from the opposite error: lead them, while they are studying the art as they find it now, to expect that practice and opinions will change considerably during a very few years, and to be prepared to take an active part in the labours and responsibilities that such changes involve.

To those who are able to remember several of our annual meetings, it is interesting to call to memory the different subjects that were prominent in our minds year after year, and to note the alteration in our views and feelings that the lapse of a few years can produce. If we look at the many excellent drawings in the Architectural Gallery of the International Exhibition—still more if we look back in our illustrated periodicals, we are struck by the wonderful change in taste that has taken place amongst the more active minds in the profession. New ideas that once caused some excitement have ceased to be novelties, and have been absorbed in modified forms into the practice of design. They may have been simply reproductions from ancient examples; but, being new to us, they have to some extent satisfied our desire for change, and have certainly infused variety and life into the particular class of art to which they belonged. For many years past such a process as this has been going on, nor do I think it has come very near its conclusion. The present is an age of discovery in which, although much ground has been thoroughly examined, much has been left comparatively untouched. We are far from being able to say that we know all the beauties of Gothic art, while the discoveries of late years amongst classical remains have been very valuable, and have done much to provide that kind of variety which was at one time so greatly needed. It is natural to avail one's-self first of the ideas which come readily to hand, and which are of acknowledged excellence, and not till new discoveries became rare, and a pressure for original invention arises, is it likely to greatly prevail. The invention, which is now exercised by the professors of the different styles, is of a far more healthy kind than in years past. Copyism is less encouraged; you cannot so frequently as formerly point to a whole building or part of a building, as taken from a particular example. The architect works freely in his chosen style, he does not justify a fault by appealing to his copy, but says very fairly, "this is my design, let me bear the praise or blame." This may be very far from what some of the more advanced theorists upon architecture desire to see; but let them not be too impatient, forces are in operation which will allow nothing to stagnate, and will turn even the slowest of arts into a channel in keeping with the feelings of the age. We have had a comparatively quiet period for the study and revival of ancient styles. We are probably entering upon a period of activity in architectural matters for which we are scarcely prepared. It has happened that Gothic art, which has been so largely used in our churches, has answered very admirably the demands made upon it; but it can hardly be so with all styles when we apply them to the great variety of demands to which advanced civilization and wealth have given rise. In our own country these demands are rapidly increasing, and at the same time new materials are being brought into use, which much increase the powers of the architects in matters of construction, and even in design also. I hope to see amongst those architects, who are celebrated for skill in design, a much stronger disposition to avail themselves of new materials wherever their adaptability in point of economy can be fairly proved. Not until continued efforts have been made to treat a new material artistically should the attempt be abandoned, and we should never abandon it, when by so doing we

leave it in the hands of persons who will use it without caring anything for its artistic treatment. To use these things under disguises, instead of taking the trouble to discover a form which becomes them, is as great a loss to art as is the attempt to supply some new want of modern times by twisting the design for an ancient building out of its proper use, instead of trying to supply the need from more original sources. I have alluded to these matters, though they are by no means novel ones, because I believe that while we are calling for more originality, we are throwing away very important opportunities for developing it, and because it is specially our business here to see that no occasion of doing a good thing shall pass, and if it be at the same time a new thing we profess to be better pleased. I will not say further that such questions as these, where truth is involved, are above and beyond mere questions of style, and that any style which refuses to adapt itself to new purposes, and to use novel means, will in no long time become an antiquity, and give place to a more pliant rival.

We must, then, endeavour to promote originality wherever a proper opportunity arises; but in doing so I sincerely hope that nothing will be done to greatly check the strong feeling which men now have for the style in which they work. There is so little of enthusiasm in the world that it would be matter for the greatest regret to see that which exists so strongly amongst us reduced to a cold impartiality, which could not be very far from indifference. Wherever work is to be done that is difficult and not always agreeable, the man whose heart is in it is the man to do it. The study and revival of ancient styles is of a nature to produce feelings of a very strong kind; if it were not so, the art of architecture would be as dull and prosaic as any ordinary business in life. But, happily for us, we are employed in a pursuit in which we may, if we will, take a warm interest; we may feel that it is endeared to us by the labours which it has cost us—the friends who have aided us in it—the opponents against whom we have defended it. The man who has spent his best years, for study either in foreign travel, or in seeking out the exquisite remains that are scattered up and down his native country, can never be truly impartial. It is for the man who has done neither of these, or the man who has done both and cares for neither, to serve out justice with one weight and one measure. But we may be sure that it is by no such judgment that the fate of the parties will be settled: the profession will settle the matter amongst themselves in the ordinary course of events; that style, the followers of which practise it with the truest feeling, and are at the same time most confident in its powers to supply the wants of the age, will contribute most largely to the style of the future.

But speaking as I do without professing to be impartial, I may be allowed to suggest that it is for the interest of all parties, and of the great cause which, through all our differences, we profess to serve, that we should seek to temper our enthusiasm with a larger information upon the beauties and advantages that are claimed for the style which we do not profess to practise. We may depend upon this, that no very large body of professional men has become attached to any style by accident; and if we were to take some trouble to find out its merits, instead of seeking for defects, we should be gainers in information, in liberality of idea, and in the power of judging correctly as to matters more immediately connected with our own pursuit. We should be able to discuss matters fairly open to dispute with something like good temper, and with something like sound logic, and by being compelled to inquire into the hidden principles of that beauty which seems to us so obvious, but which does not affect all in the same degree. We should be more competent to produce designs claiming to be original, and could more safely leave the beaten track for fields now unexplored, but whose treasures may be not less rich than that now lying in our hand.

The following is the Syllabus of Papers and Sketches for the Session 1862-63:—

- Oct. 31. Opening Meeting: President's Address.
 Nov. 7. Class of Design—Drawing-room Ceiling.
 14. Architectural Alliance Discussion.
 21. Class of Design—Staircase and Hall to a Museum.
 28. The Voluntary Architectural Examinations. By Arthur Ashitel, F.R.I.B.A., F.S.A.
 Dec. 5. Class of Design—Buffet.
 12. Perspective. By E. L. Prarie. Illustrated by Models.
 19. Class of Design—Lych Gate.
 26. Prize Essays will be read.
 Jan. 2. Class of Design—Altar and Reredos.
 9. Architectural Criticism. By L. W. Ridge.
 16. Class of Design—Street Lamp.
 23. The Use of Libraries. By J. W. Papworth, A.I.B.A.
 30. Class of Design—Gamekeeper's Lodge.
 Feb. 6. A Paper will be read by T. M. Rickman, A.I.B.A.
 13. Class of Design—Public Fountain.
 20. Ventilation. Illustrated by Models. By G. B. New.
 27. Class of Design—Organ.
 Mar. 6. The Architecture of Napoleon III. By R. Phene Spiers, A.I.B.A. Illustrated by Drawings.
 13. Class of Design—Oriel Window, or Bay Window with Shutters.
 20. Gothic Woodwork. By R. O. Harris.
 27. Class of Design—Chalice Flagons and Paten.

April 3. Good Friday.

10. Class of Design—Market Buildings for a Small Town.
 17. Conversation and Presentation of Prizes.
 24. Class of Design—Dairy.
 May 1. Special Business Meeting. A. W. Blomfield, M.A., will read a Paper.
 8. Class of Design—Choir or Chancel Screen.
 15. Second part of Paper on "Metal Work." By F. A. Skidmore. Illustrated by Diagrams.
 22. Class of Design—Metal Finial and Cresting.
 29. On Building Materials and their Adaptation. By Arthur Allom, A.I.B.A.
 June 6. Class of Design—Public Memorial.
 13. "Nomination of Officers." Rochester and its Cathedral. By C. North. Illustrated by Drawings.
 20. Class of Design. Cemetery Monument.
 27. "Election of Officers." Summer Sketching. By T. R. Smith. A.I.B.A.

Prizes will be given for the best essay on "Vaulting and Groining," and for the best and second best series of "Sketches contributed to the Class of Design."

A prize of £5 will be given by W. Tite, Esq., M.P.—£3 for the best design for a "Country Mansion," and £2 for the second best. A prize of £1 10s., contributed by A. B., for the best line perspective "Sketch of a Porch." These prizes will be awarded on the 17th of April.

ILLUMINATING.

We have frequently had occasion to refer in our columns to the beautiful and now very fashionable art of illuminating, so long hidden in obscurity, owing to the introduction, in the fifteenth century, of printing. Its revival serves to illustrate that, at a time hitherto considered the "dark ages," there existed an appreciation for art that we, in more modern times, were not inclined to give them credit for. Old and valuable manuscripts, long forgotten, are once more restored to the world. Already they have improved ornamental art, although it may be assumed that its brightest era is yet to come. The student is now enabled by their aid either to form his own designs, or to copy those of the old monks, worked out in the scriptories of their monasteries centuries ago. A modern writer justly remarks: "It is to be hoped that a taste for strictly appropriate ornamentation may be more largely cultivated, to the exclusion of those tawdry and unmeaning decorations which offend the eye."

New and exquisite designs are being constantly produced, some of which we have observed in the principal art repositories, in this city, the productions of Mrs. James Hopkins, Great Brunswick-street, by whom the art has been carried to great perfection. Having seen at her studio some very beautiful mediæval specimens, we desire to direct the attention of the lovers of art thereto.

It is evident, from the celebrated "Book of Kells," and other Celtic manuscripts, that, at a period when art was almost extinct in England and upon the Continent (from the fifth to the end of the eighth century), illuminating was in the zenith of its glory in Ireland, and here attained so marvellous a perfection that it was afterwards copied by all the Continental schools; we are, therefore, glad to perceive that our isle, in the nineteenth century, is not behind other countries in rapidly increasing love for this art, which is spreading through the length and breadth of our land.

THE CHARACTERISTICS OF MODERN CIVILIZATION.

SELECTING the above title for his theme, Mr. McKenna, the editor of the *Ulster Observer*, delivered an eloquent and instructive discourse on last Thursday evening at the Victoria Hall, Belfast, in the presence of a distinguished assemblage. The lecturer contrasted the civilization of the ancients with that of the moderns, showed the weakness inherent in the former, and explaining the causes of its decay. He then traced the rise and progress of Christian civilization, and proved that religion was its sustaining power—that without religion, art and science would have been powerless to achieve their grand results. He next sketched the state of society in general at the present day, and pointed out what was yet to be realised before the perfection of civilization could be said to have been attained. The lecture was received with general applause, and we trust that in our next number we may be enabled, by the courtesy of the author, to place more lengthened particulars before our readers.

THE GREAT SHIP COMPANY.

A SPECIAL meeting of shareholders was held lately to consider the present condition of the company. The directors' report took a very favourable view of the earnings of the ship. The financial results of the accident were, however, described as most serious. It was absolutely necessary that something should be done by the present meeting, in order that the ship might still remain in the possession of the company. The report recommended the issue of a mortgage stock for £100,000, at eight per cent., interest payable in three years; and a resolution to this effect was passed.

The *Freeman's Journal* acknowledges up to the 28th ult. the receipt of £3224 5s. towards the erection of the O'Connell monument.

ROYAL IRISH ACADEMY.

A STATED general meeting of the members of the Royal Irish Academy was held at their house, 19, Dawson-street, on Saturday evening last, for the purpose of electing two members of Council.

The Very Rev. Charles Graves, D.D., President of the Academy, occupied the chair. The successful candidate for the Committee of Literature was R. R. Madden, D.D.; and for the Committee of Antiquities, Rev. J. H. Todd, D.D. Mr. W. H. Hardinge read a most interesting paper (in continuation) "On the 'Down' Survey." He entered minutely into the subject, and cited the opinions of those who had been most engaged in the matter. Several members entered into discussion on the views brought forward by Mr. Hardinge, to which that gentleman replied and elucidated the several points which seemed difficult or objectionable. Finally, on the motion of Mr. Wilde, it was resolved to refer the continuation paper, together with Mr. Hardinge's previous remarks on the same subject, to the Council for the purpose of having it published. Mr. J. B. Jukes read a paper "On the Flint Implements found in the gravel beds at St. Acheul, and their mode of occurrence." He described a visit he made in the Autumn of this year to the gravel pits of St. Acheul, near Amiens, in which the celebrated flint implements had been discovered, and described a means of discriminating by means of a difference in the appearance of the surface, between those which were rarely buried in the gravel at the time of their deposit, and the spurious ones manufactured by the quarrymen. He mentioned the fact of these implements being made by men who were contemporaneous with the mammoth, and the woolly rhinoceros, and other extinct animals, at a time when the River Summe had not excavated its valley so deep as it has now by a 100 feet. He also alluded to the well-known circumstance of the climate of that period in the north of France and south-east of England, being like that of Siberia and the country of the Esquimaux, and that these *pleistocene* men used some of these implements in making holes in the ice of the rivers during the winters, and others of them in killing the animals that came to these holes to breathe. As an explanation of the flint implements being found in greater abundance in certain situations than others, he adduced this well-known fact as an example. The Chairman proposed, and it was carried unanimously, that the remarks of Mr. Jukes be referred also to the Council for publication. Mr. Jukes remarked that there was nothing which he had on this occasion alluded to but what had been previously published.

THE REGULAR OPERATIVE CARPENTERS OF LIMERICK AND THE MAYOR.

A PLEASING evidence of the appreciation felt by the artizan classes towards those who befriend them has just been afforded in Limerick, by the presentation to the Mayor (Alderman Joynt) of an address and freedom of the guild by the carpenters of that "antient citie." A deputation consisting of the following waited on the Mayor at his residence, viz.:—John Connor, Robert Gubbins, John Maher, Peter McDonough, James Ryan, Pat Moroney, William Raleigh, Joseph Hickey, Thomas Moloney, Thomas Hutchinson, Patrick Hyne, and Patrick Noonan.

The following gentlemen waited to assist at the presentation on their arrival in the drawingroom:—Alderman Quinliven, Peter Tait, Esq., D. Cullen, Esq., W. Delany, Esq., John Ellard, Esq., Town Clerk; Charles Dawson, Esq., T. B. Jones, Esq., H. M. De Courcy, Esq., Treasurer of the Corporation; Mr. Meade, the president, and Mr. Grimes, the treasurer of the congregated trades, were also present.

After preliminaries were arranged, Mr. Maher read the address, which was printed upon white satin, ornamented by a beautifully embroidered border of Limerick lace, the design and execution of which were much admired.

"THE ADDRESS OF THE GUILD OF CARPENTERS OF THE CITY OF LIMERICK TO THE RIGHT WORSHIPFUL WM. L. JOYNT, MAYOR.

"RIGHT WORSHIPFUL SIR,—We, the Members of the Guild of Carpenters of the ancient city of Limerick, take this opportunity of testifying to you our esteem for your services to our body, and our respect for your public and private character. To most of us you have been known from your childhood, and on all occasions you have displayed those qualities which, year by year, have endeared you to your friends. We call to mind that you have always been the steady friend of the working classes, that your first public effort was to aid in establishing a Trades' Adult School, that you have always patronized and supported in every way the Mechanics' Institute, and that your efforts in the cause of public education have been constant and successful.

"To every useful project in the city you have always lent a generous aid, and now, when the citizens have placed you in the highest position in their power to bestow, and which you have filled with public spirit and a high love of justice, we wish to join ours to the general voice, by enrolling you amongst the free and ancient Guild of Carpenters, by conferring its freedom (granted unanimously

at a general meeting of our members), and by asking you to accept this address, and the badge of our Guild with which we are about to invest you.

"We feel satisfied it will remind you, whenever a mechanic requires your aid, that the Members of our Guild were not ungrateful for those favours which you have shown to us in the various matters relating to our interests, brought under your notice during the present year, and for those public offices which entitle you to the admiration and regard of the mechanics of Limerick. Now, that your year of office is about to expire, you carry with you our best wishes for your prosperity and happiness.

"Given under the common seal of our Guild,

"JOHN O'CONNOR, Chairman.

"ROBERT GUBBINS, Secretary.

"Dated this 25th day of November, 1862."

Mr. Maher accompanied the presentation with some appropriate and complimentary remarks.

The Mayor in reply said that he would not attempt to conceal the pride and gratification he felt at receiving an address so eloquently, but too flatteringly addressed from a body so respectable and so useful as the Guild of Carpenters. He was proud also of the honour which they conferred on him in investing him with the order of their ancient guild. He was aware that it was an honour to which few men were admitted, except those who either in their public character conferred benefits on the city, and he accepted it as a mark of gratitude on the part of the mechanics for the little services which he had endeavoured to render them on every occasion when it was in his power. He had always looked upon himself as one of their body; for though not a mechanic in name, he was as much a working man as any of themselves. He considered the mechanics of Limerick, as a body, equal to those of their craft in any part of the kingdom. He was exceedingly gratified to find, on a recent visit to the School of Art, that it was attended by a large number of mechanics, most of whom belonged to the guild of carpenters. He was aware there were many amongst them whom he was anxious to rise to eminence. It was the boast of this country that the mechanic, whose conduct in life was governed by good principles, and his ambition guided by honest and upright motives, could attain the highest position. He was delighted with the hope that his son, who was an interested observer of their proceedings on that occasion, would, when he grew to man's estate, not only be proud to be a workman himself, but that he would be proud of the friendship and regard of the working men of Limerick. There were no sentiments that he would wish to instil into his mind more than the knowledge that it was by honest hard work he could hope to attain any position of independence. They all knew the reward of labour. It was the seed of happiness, contentment, and wealth. They would remember the words of Clarence Mangan—

"Toil is polished man's vocation,
Labour is the meed of skill,
Kings may vaunt their crown and station,
We will vaunt our labour still."

Upon any other occasion he would be able to express himself with greater facility. He hoped they would give him credit for very sincere gratitude to them for their kindness. He had only one regret on this occasion, and it was that his house was not sufficient to receive them all. He believed their guild was the largest in the city. He would have been very happy to welcome them all if he had room for them. He would, in conclusion, express a hope that they would never have occasion to regret the day on which they came to present him with the freedom of the ancient Guild of Carpenters.

Mr. Maher then proceeded to invest his worship with the badge of the guild, which consisted of a card, a sash, and an apron, all got up in the most elegant fashion, and at considerable expense. The sash and apron were of green silk, with an exquisite gold fringe. On the sash was printed the motto, "Honour and Justice," around which was a variety of emblematic devices, executed in the neatest manner. The card bore the inscription—"Freedom of the Guild of Carpenters, presented to Wm. Lane Joynt, Esq., Mayor."

His Worship remarked that he was almost as proud of his new costume as when he first assumed the chain and staff of office.

The whole party then proceeded to the study, where an excellent supper was prepared by the worthy hostess.

FREE OPENING OF STEPHEN'S GREEN.—The committee for promoting this object, at its usual weekly meeting last evening, had the following adhesions to its guaranteed subscription list handed in by the honorary secretaries, Messrs. McEvoy and Finucane:—William Roche, Esq., Harcourt-street, subscription, £5; Sir James Murray, M.D., Temple-street, £2; Michael Dwyer, Esq., Abbey-street, £2; Alfred Webb, Esq., £1; ten domestics in the employment of Sir J. Murray, ten shillings each, £5. Mr. Roche, in sending in his adhesion, observes that twenty years ago he advocated this most desirable measure for the innocent and healthful recreation of the people.

THE PARIS PERMANENT EXHIBITION BUILDING.

NEXT year it will again be the turn of our volatile French neighbours to show the world their skill and taste in the erection of a building for exhibition purposes, but this time we may remark that the project will be of a permanent and substantial character, not merely temporary, as on the former occasion. Doubtless very many of our readers will avail themselves of the inducements, in the shape of cheap trips, &c., sure to be offered in the course of the ensuing summer for a sojourn at Paris; and as the Exhibition will form an important feature amongst the varied attractions of that beautiful city—and emporium of art, *par excellence*—we give herewith a perspective exterior, and geometrical section, and ground plan of the intended building. The site is at Auteuil, close by the new railway, and the road to St. Cloud. The main building—the internal arrangement of which may be learned by reference to the ground plan—is, in clear, 1,050 feet in length, by 180 feet in width; and is intersected by a transept 550 feet in length, above which will rise a single dome, to a height of 345 feet, being 90 feet higher than those at South Kensington. The nave and transept will be spanned by a semicircular roof, 110 feet in height to the crown. At the southern extremity is a polygonal structure, 222 feet in diameter, and 110 feet in height, intended for a music saloon, and to accommodate 10,000 persons; and immediately adjoining will be erected two winter gardens. The architect is Monsieur Liandier, and the contractor Mr. Edwards. Considering that the faults of the London Exhibition building were before the eyes of the designer of this we see no reason for congratulation, or much improvement thereon, though probably the architect was placed, as most architects are, under restrictions—"imperial" perhaps.

MESSRS. ROBERT SINCLAIR AND CO'S NEW SHIRT FACTORY, DERRY.

WE find that in our description of this important building, furnished to us by a local correspondent, we, inadvertently, misstated the cost of erection, which, instead of being £4,000, is—as we are now informed—about £10,000, to which, if the cost of the workers' dwellings in connection be added, a total of £12,000 or thereabout will be presented. We regret that the error should have occurred, and more especially in the present instance, where the eminent building firm, Messrs. McElwee of Derry, the contractors, are amongst our earliest and best friends; but we trust that those gentlemen, however, naturally aggrieved by the misrepresentation unintentionally conveyed, will be satisfied at the *amende honorable* which we now take the earliest possible opportunity of making. Retaining grateful appreciation of the pleasure derived from our recent visit to the "maiden city" of Derry and its good people, we shall renew our acquaintance and personally note progress since that period, at as early a date as circumstances will permit.

EXTERNAL DECORATIONS.

WE are much pleased to notice of late years, in this city, a desire on the part of the proprietors of business houses generally to give an architectural character to the fronts of their establishments, although, in many instances, the features of the designs so developed may not be without objection when artistically criticised. The employment of cement as a substitute for the more permanent material, "stone," presents facilities for architectural embellishments which, unless to a comparatively limited extent, cannot be in brick; and it is therefore an object of ambition for every proprietor of taste, the front of whose establishment has a superstructure of unrelieved and dingy brick, to improve it by a thorough plastering in cement; adding architraves and trussed entablatures to the formerly bare window opens, and substituting a fine bold moulded cornice and blocking or parapet for a plain coping stone, with or without other ornamentations. Independently, even of the improvements so effected in some of our leading streets, which from their position would demand a special and careful treatment to harmonize with the general architectural merit of the metropolis, we notice a spirit of emulation springing up amongst the proprietors of establishments situated quite out of the general thoroughfare, and, in some instances, in by-streets and ways wherein the exercise of artistic skill might seem to be like "wasting fragrance on the desert air." However, it tends to improvement and may induce others "to go and do likewise," besides it gives employment to our master plasterers and their operatives, and we are therefore glad to see the scaffolding being raised even in a lane or alley. A short time since a considerable outlay was in-

curred by the proprietor of a business concern in the backward locality, known as "Copper-alley," in dressing up his front, although it is surrounded with concerns by no means architectural, and only a glimpse of the improvement is obtainable through a narrow filthy laneway from the adjoining thoroughfare of Castle-street. This work is even of somewhat more than usually ornate character, and the execution of it reflects great credit on "The M'Anaspie" of Great Brunswick-street, master plasterer and scagliola artist, &c., whose skill in the various branches of decorative art requires only to be known to be appreciated. Contiguous hereto, in Fishamble-street, "the M'Anaspie" has also been engaged in the embellishment of the façade of Mr. Roger Farrell's extensive trunk manufacturing establishment, and of an adjoining house, the property of Messrs. Ferrier and Pollock. The former is of more elaborate and classic design, with allegorical figures of industry, enterprise, commerce and plenty introduced, which contribute greatly to the *toute ensemble*. The latter is of plainer character, the dressings only being in cement, while the groundwork is coloured in red brick neatly jointed. We hope to see many house proprietors in the course of the ensuing spring and summer avail themselves of the skill of such men as "the M'Anaspie" and his brethren stucco plasterers, Stedman, Hogan, Giblan, Carroll, Fitzpatrick, &c., in working out the designs of some architect of taste for the further beautification of the city.

NEW PATENTS.

List of Letters Patent which passed the Great Seal from the 81st October to 25th November, 1862:—

Wm. Huntington and another, for "Improvements in the machinery for the manufacture of bread."

John M'Cann, of the city of Dublin, gentleman, for an invention of "Improvements in the mode of, and apparatus for drying, cooling, and cleaning grain."

Henry Wm. Sambridge, for "Improvements in sliding chandeliers, gaseliers, and other pendant lamps."

Robert M. Latham, for "Improvements in steering apparatus."

Joshua Ransom and another, for "Improvements in mounting mill-stones."

John Nickson and another, for "An improved foundation or ground-work for plaster or ceilings, walls, partitions, and other purposes."

Pierre M. Lopez, for "Improvements in apparatus for sowing wheat or other grain or seeds."

George H. Birkbeck, for "Improvements in apparatus for consuming smoke."

Richard A. Brooman, for "An improved method and apparatus for the production of photographic and stereoscopic portraits and pictures."

Andrew Smith, for "Improvements in balances for weighing letters and other documents."

W. E. Newton, for "An improvement in elongated bullets."

Edward Samuel Ritchie, "A new and useful improvement in the mariner's compass."

George Hadfield, for "Improvements in the manufacture of casks or barrels, and in the machinery and apparatus to be used in the construction of the same."

Joseph Needham, for "Improvements in breechloading fire arms, and in cartridges for such fire arms."

George A. Huddard, for "Improved means for superheating steam."

James Webster, for "An improved apparatus for the manufacture of gas for illumination."

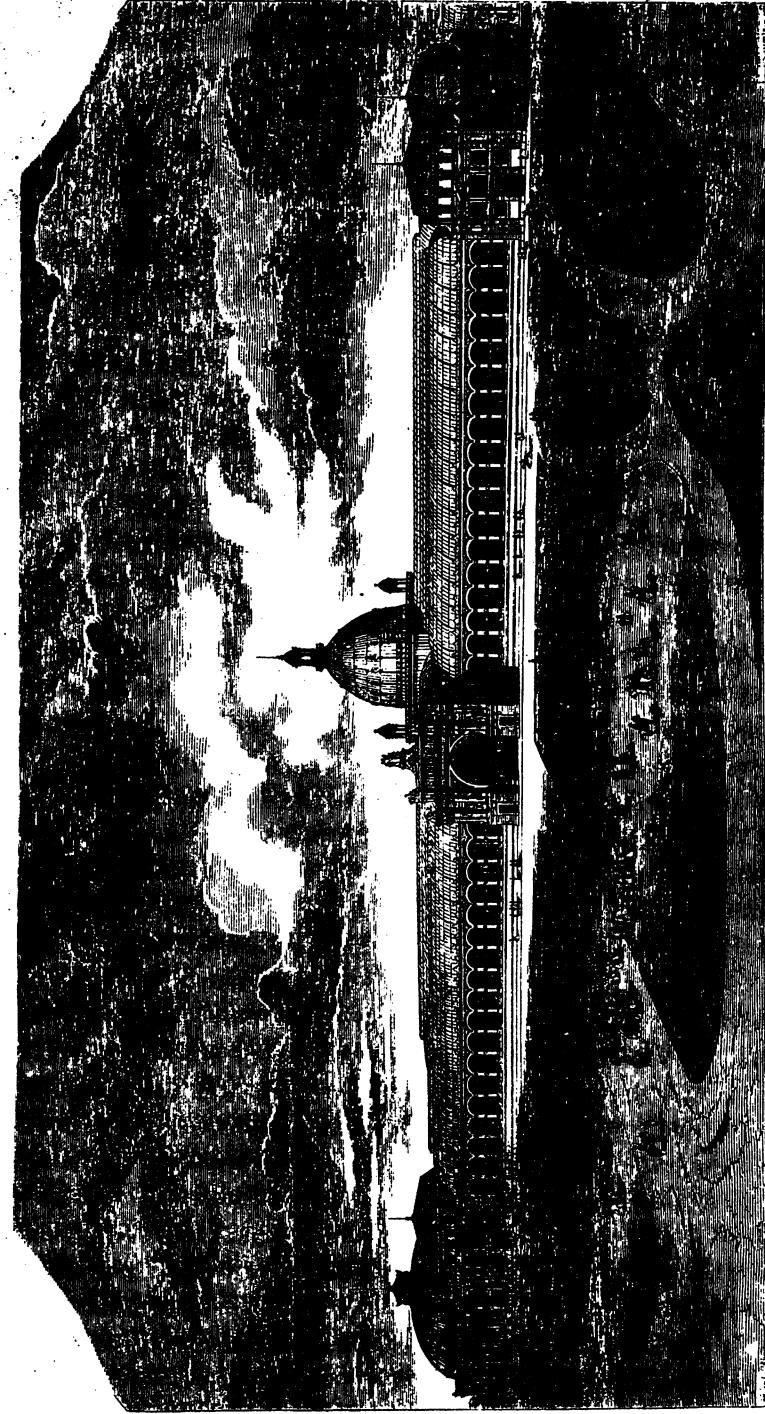
James H. Perry, for "An improved method of curing diseases of the human body by magnetism."

John Duffey, for "An improved apparatus for measuring piece goods or webs."

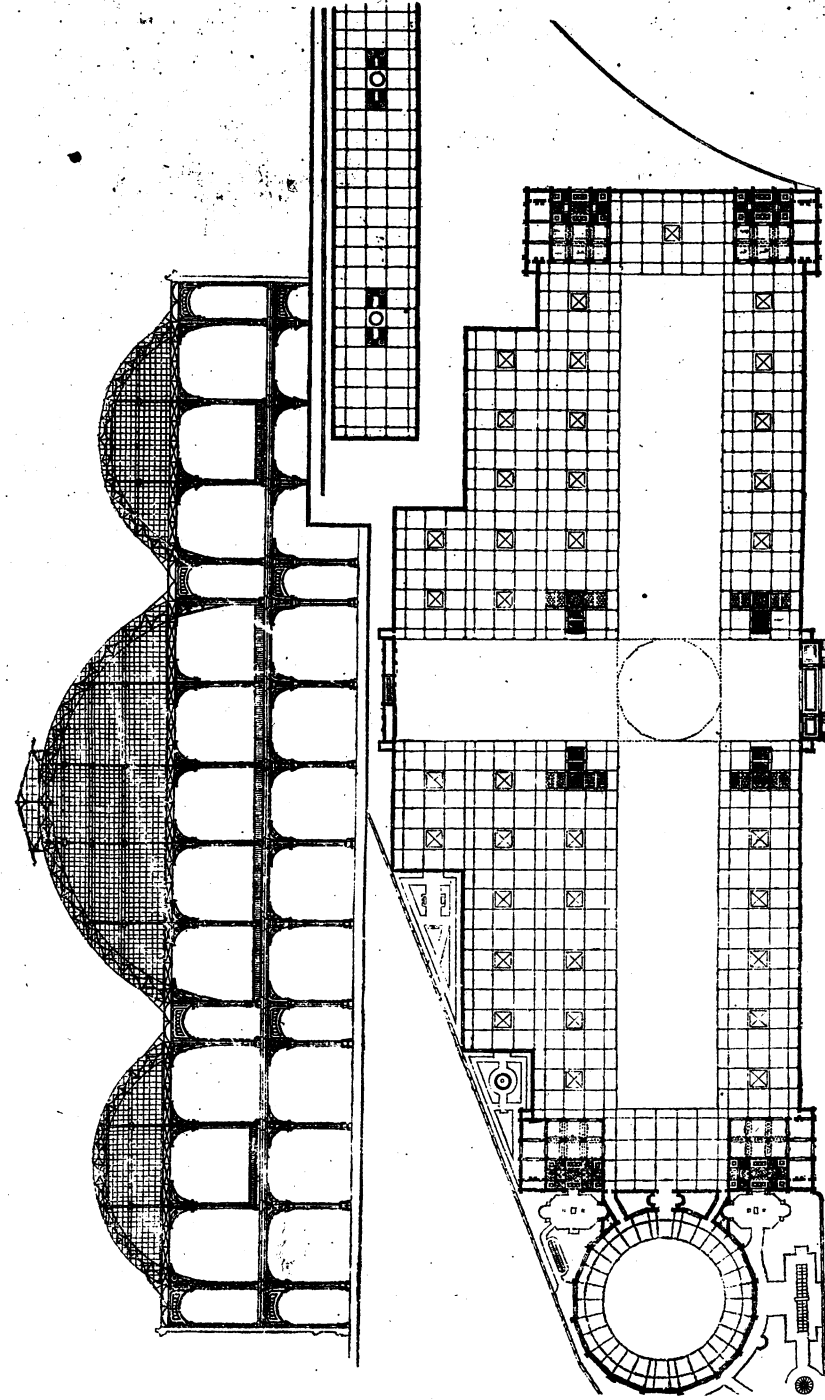
William T. Smallwood, for "Improvements in water closets."

Nicholas Jackson, for "An improved shield for the gums to protect them from injury when cleaning the teeth."

WEIGHT OF ATMOSPHERIC PRESSURE.—It is known that the pressure of the atmosphere on a square inch of surface is about fifteen pounds. Now the surface of the body of a man of middle size is about twelve square feet; the weight, therefore, which a man supports on the surface of his body is 25,920 pounds, or upwards of eleven tons. Such an enormous pressure might seem impossible to be borne, but it must be remembered that in all directions there are equal and contrary pressure which counterbalance one another. The solid parts of the skeleton could resist a far higher pressure; and as to the air and liquids contained in the organs and vessels, the air has the same density as the external air, and cannot be further compressed by the atmospheric pressure. When the external pressure is removed by means of a cupping-glass, the pressure from within is at once seen by the distension of the surface.



THE PARIS PERMANENT UNIVERSAL EXHIBITION.—Mr. LINDLE, ARCHT.



THE PARIS PERMANENT UNIVERSAL EXHIBITION.—Plan. Cross Section at narrowest part, on larger Scale.

THE LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

THE CORPORATION NEW CATTLE MARKET.

ON Monday, the 24th ult., a special meeting of the Corporation took place, Alderman Reynolds, in the absence of the Lord Mayor, occupying the chair. After some proceedings with reference to the waterworks, the Town Clerk read the report of the cattle market committee in reference to the contracts for the construction of the new market.

It stated that five tenders were sent in, the lowest being from Mr. James Byrne; but that, on correcting a manifest error of figures in Mr. Meade's estimate, the latter would be the lowest. The correction was made by Mr. Meade on his attention being called to the matter, and the committee accepted his tender at £17,221 3s., if he agreed to execute the paving work at 6s. the square yard for Welch paving, and 4s. per square yard for calp paving on the roads and pens.

The Town Clerk read a memorial from Mr. James Byrne, one of the contractors, stating that he sent in a tender for the construction of the market, which tender was opened on the 13th instant, and found to be the lowest; that on the following day Mr. Meade was allowed to amend his estimate from the amount of £22,787 15s. to £17,221 3s.; that if memorialist was permitted to make the same deviations from the specifications which were made by Mr. Meade, he would be £236 5s. lower than Mr. Meade's reduced estimate, and memorialist requested the council to send back the estimates to the committee to have them reconsidered, and the contract decided on its merits.

A lengthened discussion on the question ensued, in which Dr. Gray said that if he had been present on the second day that the tenders were under discussion, he would have voted with those gentlemen who unanimously voted for accepting the tender as it now stood, and as it had been reported to the council. It so happened that he (Dr. Gray) had for the last three or four years in anticipation of very heavy tenders coming before the house, with which he would have to deal, devoted himself to considering engineering questions, contract questions, and "tender" questions; and there had scarcely been a great tender made for any great work that he had not had some conversation with the engineers connected with these proceedings for or against them, including Mr. Bateman, to know what was the routine in these proceedings. He entirely differed with Mr. Martin as to the routine in reference to this matter. Mr. Martin had said that he never heard before of tenders being amended, though it was a most common occurrence with public bodies to get the tenders of suitable contractors amended so as to bring them within the true cost. The committee who had been appointed to consider the question prudently said to themselves, "we must make this market a success; there are two things necessary to make it a success; first, we must have it well and economically constructed; and next, we must have it rapidly constructed, so as to bring it into action in time. If we come into action three months late, our market will be a failure; if we come into action three months early, our market will be a success." Now, in dealing with a question of that kind it was all-important to determine who was to be their contractor. The success of their market depended on their contractor. Their plans were good and perfect; their committee able men who understood their business; but no ability on the part of the committee—no perfection of their plans, and no financial power on the part of their subscribers, could do as much towards the success of the market as their contractor could do for them. If they got a contractor to whom extraordinary effort was no labour—who could commence at every department of the work at once, and go into it with all the powers of skill, labour, knowledge, and capital, and who gave them a guarantee that the work would be finished in proper time, they would have taken the best measures to secure success. If they looked to the list they would find there the names of some eight or ten gentlemen who had given £1,000 each towards establishing the market, and those gentlemen represented by Mr. Augier gave the committee the strongest and most energetic advice, as he (Dr. Gray) understood, that the contract and tender of Mr. Meade before the house be adopted in order to render the market a success. As to the other point—the changing of the figures—nothing was so common amongst public boards, when they found, amongst the tenders sent in for works a tender from a man—and in saying this he did not mean to express the slightest disparagement on any of the contractors—who from his capacity for doing work, and his mode of doing it, they believed would be a man to do the work in question within the time, and in a satisfactory manner—in such a case nothing was more common amongst railway and other public boards—in England it was done every day—than to say to the contractor—"We will not give you the contract at the figure in your tender, but if you reduce your tender we will." That was being constantly done, and in following that course, he (Dr. Gray) believed the committee acted wisely. He did not object to postponing the confirmation of the report and tender; on the contrary, he approved of that course.

The Chairman then put the question that the report and the re-

commendation of the committee that the tender of Mr. Meade should be accepted should be postponed till the next meeting.

Passed unanimously.

A letter was read from General Larcom, stating that the Lord Lieutenant approved of the appointment of Professor Cameron to be public analyst for the city.

LAMBETH NEW BRIDGE.

WE (*Athenæum*) have at last got a new bridge across the Thames at Lambeth, where it has been talked about for centuries, and much needed ever since the parish of Lambeth got its name from a hithe or landing-place, at the spot where the new bridge now is. Fitzstephen, so long ago as the time of our early Norman kings, laments the dangerous character of the crossing, which long ere his time was one of the most important ferries or places of transport in the kingdom. He says, people were often detained at the hostelry for days, on account of the tempestuous state of the weather preventing the employment of the old horse-ferry,—hence Horseferry Road on the Middlesex shore. The spot has innumerable historical associations, from its use as a ferry, and also as the landing-place attached to the ancient archiepiscopal palace. Mary of Modena, when James the Second fled, waited under the old church-wall for some hours while it rained and blew violently, and the boy she held in her arms wailed, unconscious of his lost heritage. Here stands Mr. Barlow's wire-bridge, not a beautiful structure, except in so far as it promises to do its office, and has that structural propriety which is the most important element of design. At a cost of £30,000, including the approaches, this useful but narrow edifice has been set up. It is 1,040 feet long, or about that of the water-way of Waterloo Bridge. Between the abutments from shore to shore are 828 feet; 78 feet more than the water-way of New Westminster Bridge, and 50 feet more than that of Blackfriars. Its width is 32 feet, the roadway taking up 20 feet of this space, and each footpath 6 feet: it is 21 feet above high-water mark. The gradient of the approaches is very steep, being not less than 1 in 20. This was compulsory, owing to the great cost of making extensive alterations in the levels of existing roads leading to the work. If the speculation should become profitable, the proprietors will see their interest to lie in remedying this defect. The suspension-ropes, which are formed of wire manufactured on the spot, are passed across the heads of four towers, made of $\frac{1}{2}$ inch boiler plate, riveted precisely in the manner of the Britannia and other tubular bridges. There are three spans, of 280 feet each. On the shore ends of the structure these towers are supported on foundations of solid masonry; those in the river rest on cylinders of cast iron, 12 feet in diameter, and looking like gas-pipes screwed in the river-bed. These descend 18 feet below the river-bed, and rest in the London clay: 9 feet of this has been filled up with solid concrete; over this come 3 feet of brickwork, then a lining of brick formed like a ring, 3 feet thick, reaching to the top of the cylinder or base of the tower it sustains. The cavity thus formed will be useful for inspecting the condition of the piers. There are two main ropes of twisted wire on each side of the work, each composed of seven strong strands banded together, each of the seven containing seven strands of wire $\frac{1}{5}$ th of an inch in diameter. The united strength of the main ropes is calculated to bear 2,000 tons, the ordinary traffic on the bridge being estimated at about 600 tons. These ropes are screwed at either end round an eye-bolt, or staple, with 28 screw-bolt fastenings, which will bear a strain of more than 2,000 tons; the ultimate anchoring of these is secured on both sides of the river with ample strength. On the Westminster side 12 square cast-iron caissons, or boxes, of 7 tons each, have been sunk below the peat in a hollow square, their interiors and the space within filled with concrete, so as to form a solid mass, that rests 20 feet below the surface. The suspension-ropes thus formed and secured carry rods, that are attached to the rigid suspension-girders that lie beneath the bridge, and obviate the unpleasant, or even dangerous, swaying and vibratory motion of suspension bridges. These girders seem not to be beams of solid iron, as in former cases,—the Moorish bridge at Chelsea, for instance,—but to be built up of boiler-plate, like the towers themselves.

THE REGISTRATION OF BIRTHS AND DEATHS.—The applause which greeted the Solicitor-General's remarks, at the Historical Society's Opening Meeting, on the necessity for establishing a system for the Registration of Births and Deaths in Ireland, is but a foretaste of the popularity certain to be acquired by the Government in any real attempt at practical legislation on the subject.

We are happy to be able to announce that a pamphlet is now at press, in which the whole question is reviewed, and the solution of the difficulty in the way of legislation pointed out. It will appear in a few days, and is from the pen of Mr. John M'Evoy, the Hon. Sec. of the Dublin Registration Committee.

ROYAL DUBLIN SOCIETY.

THE first scientific meeting of this society for the session of 1862-63 was held on Monday evening, the 17th ult., at the Society's House, Kildare-street. Mr. William Andrews occupied the chair.

Dr. Steele read a paper by Dr. Lawson, Professor of Physiology, Queen's College, Birmingham, on "The Anatomy of the Genus *Limax* (the Slug)."

Mr. R. G. Scott read a paper on "The Mining Localities of Donegal," from which we quote the following:—

"Inasmuch as many years have elapsed since the publication of the last mineralogical and mining reports of those which have, from time to time, appeared under the authority of this society, it may not be amiss to allude to the fact that, for a lengthened period, from the beginning of the century to about the year 1830, systematic explorations were carried on by the officers of the Royal Dublin Society in various parts of Ireland. Mr. Donald Stewart was appointed to this duty in the year 1786, and made several mineralogical tours throughout different districts of Ireland. In the year 1809, Mr. (now Sir Richard Griffith) was appointed Mining Engineer—an office which he held for many years—and published during that period his well-known reports on the various coal districts of Ireland. Sir C. Giesecke, who preceded Professor Scouler in the professorship of mineralogy and geology, was employed during several successive seasons in making several mineralogical tours through such parts of the island as were recommended to his notice by the Committee of Natural History. Having myself been engaged during the past year, in company with Sir R. Griffith and the Rev. Samuel Haughton, in the preparation of a report on the 'Chemical and Mineralogical Composition of the Granites of Donegal, and the Minerals therewith associated,' in which I have derived great assistance from Sir C. Giesecke's reports, I have thought that it might be interesting to lay before the society this evening a brief account of what has been done, and a list of the mineral localities of the county, embodying in it the two reports of Sir C. Giesecke. This is the more necessary as I have not as yet been able to discover the second report in the library, and am therefore disposed to consider that it was only printed for private distribution, and was not bound up with the Proceedings."

Mr. Scott exhibited specimens of the various minerals which he had obtained in Donegal. He also exhibited a pig of cast iron made in the Creevelea Iron Works, County Leitrim, which are now under the management of Mr. G. Murrall. His specimen derives its peculiar interest from the fact that the fuel used in its manufacture is turf, which has been "prepared" according to Mr. Buckland's patent. He said that his attention had been drawn to the subject by seeing the notices in *Saunders's News-Letter* of the 10th and 13th instant respectively.

THE ARCHITECTURAL ASSOCIATION AND THE ARCHITECTURAL ALLIANCE.

IN THE DUBLIN BUILDER for the 15th July last we (from notes taken personally) published the proceedings of the Architectural Conference, held on the 1st of that month, at the Architectural Union Company's Rooms, in Conduit-street, London, and at which it was arranged that a report of the delegates thereat attending from the Architectural Association should be prepared and submitted. This document was accordingly read at a meeting of the latter body recently, and is as follows:—

"25th July, 1862.
"Having been appointed to attend a meeting of Delegates, held at No. 9, Conduit-street, on the 2nd of July, instant, for the purpose of forming an Architectural Alliance, we beg to report that, in conformity with our instructions, we met the Delegates from the other societies whose names are given in the paper presented herewith [London Association, Institute of Scotland, Institute of Ireland,* Birmingham Association, Bristol Association, Liverpool Association, Glasgow Association, Manchester Association, Northern Association], and having heard and considered the explanations given by the promoters of the scheme, we would advise that the Architectural Association do give its adherence to the proposed Alliance. We beg to present a copy of the rules, as provisionally agreed upon at the meeting, and shall be ready to give such additional information as you may require.

(Signed)

"T. BLASHILL, President.
T. ROGER SMITH.
JAS. A. BUNKER.
A. W. BLOMFIELD."

Mr. Paraire did not see that such a measure was necessary to attain the end in view, and he believed that good and friendly feeling already existed, and proposed the following resolution:—"That the steps taken by the Royal Institute of British Architects for the Advancement of the Architectural Profession being of a satisfactory character, we must decline joining at the present time the Architectural Alliance, as proposed by the Northern Architectural Association."

Mr. Spiers seconded the resolution.

The Chairman (Mr. Blashill) said that, with the exception of this

* Strictly speaking there was no delegate from an institute in Ireland, Mr. Lyons—the conductor of this journal—having attended the conference unofficially, pending the reconstruction of the comatose Institute.

society and one other, or two at most, all the societies represented had sent in their adherence to the Alliance.

Mr. Adams moved an amendment to the effect that the Hon. Secretary should communicate with the promoters of the scheme, with a view to ascertain how many societies had joined the Alliance, and that the entire matter should be referred to a special meeting of this Association.

Mr. J. W. Walter seconded the amendment.

Several other gentlemen having expressed their opinions—

Mr. North proposed the following amendment, which was seconded by Mr. Herring:—"That the association having taken into consideration the proposal of the Northern Architectural Association, think that such alliance is desirable, and that they send in their adhesion to the same."

The Chairman, in putting the amendment, said he had given the subject anxious consideration, and cordially agreed in the report of the Delegates. At their meeting he had received an assurance which he considered satisfactory, that it was not and had never been intended to oppose the Institute in any of its functions. The idea was to form a union of societies, not to usurp the functions of any of them.

Mr. North's amendment was then put, and declared carried; the numbers being—for, 13; against, 12. The Chairman did not vote.

CONCENTRATED PEAT FUEL.

THAT the resources of Ireland are really abundant will be conceded by every one acquainted with the country; and yet the amount of exaggeration indulged in on the subject has led to an unreasonable degree of scepticism on the part of capitalists, so that while speculative fields of investment in the remotest quarters of the globe have found favour, the substantial fields nearer home have been comparatively neglected.

The great extent of surface covered by peat has naturally attracted attention to that substance; with a view to utilizing it. To some extent it serves as a substitute for those coal-fields which may be said to form the basis of the wealth of the sister countries; but the want of concentration has been a great drawback to its use as fuel for manufacturing, and even for domestic purposes. Of iron ore there is abundance in several parts of the country, but the fuel is wanting to smelt it. That compressed peat forms about the best fuel for smelting, has been satisfactorily established, and if such fuel were available at a moderate expense, there is no room to doubt that the production of iron would, ere long, become a great branch of Irish industry.

The abundance of the raw material, and the great value of the compressed peat as fuel, has made it the subject of repeated experiment, but hitherto with very little success. Compression has been tested by the expenditure of large sums of money without any corresponding results; for although the quality of the fuel thereby obtained has been everything that could be desired, the expense has far exceeded the calculations on which the operations were founded. The Irish Peat Company spent several thousand pounds in the Co. of Kerry in the effort to carry out this plan; but the Company were unable to get machinery of the requisite strength to bear the strain upon it, without incurring an expenditure out of all proportion to the result. The experience of this mode of proceeding therefore tends to the conclusion, that if peat is to be obtained in a concentrated state for fuel, it will not be by compression. Just now attention is attracted to an invention for obtaining concentrated peat fuel in operation at the Creevelea Iron Works, in the County of Leitrim, and described at some length in a paper read at a meeting of the Royal Dublin Society last week. It is certainly very ingenious, and the result, as regards the quality of the fuel, is perfectly satisfactory, as might be easily inferred from the process adopted. The entire question is one of expense; but while we are very far from being sanguine that the calculations of Mr. Brunton—the authority brought forward on the occasion in question—will be realised, we believe that the concentrated fuel would be worth nearly double the sum it is said to cost—3s. 6d. per ton - and hence there is a considerable margin here for subsequent operations.—*Agricultural Review*.

THE MAYORALTY OF BELFAST.

WE regret to find that the judges of the Queen's Bench have unanimously come to the conclusion to discharge the conditional order for a new trial of the question raised in this case, whereby the Burgess right of Charles Lanyon, Esq., the Mayor of Belfast, elected for the present year, is disputed. A somewhat similar instance occurred during the year of Alderman Reynolds' Lord Mayoralty of this city, during which the Queen's Bench disqualified him for the office, on a technical question about occupation of certain premises; nevertheless, and although another Lord Mayor was formally elected, the sturdy Alderman held his post, the Mansion-house and the civic insignia, clearly demonstrating that "possession is even more than nine points of the law."

ROYAL HIBERNIAN ACADEMY.

THE FINE ARTS—LECTURE ON SCULPTURE.

MR. JOSEPH KIRK, R.H.A., delivered, at the recent meeting of the Academy, the following interesting lecture:—

Mr. Kirk said—Mr. President and Gentlemen, in proceeding to deliver the opening lecture of this session I find the difficulties of the undertaking increased by the fact of its being a single lecture, and not one of a series, as I am thereby obliged to condense much matter in a small compass, or try your patience by a too tedious and prolix relation. It is, doubtless, known to most of those who hear me that this Academy has, from its foundation, been in the habit of electing from amongst its members professors of the various branches of the arts which constitute it; but, unfortunately, these professorships have been for the most part but a dumb show, arising not from any fault or disinclination on the part of the gentlemen elected to these offices to perform their duty, but from the paucity of students, the limited nature of the Academy, and a certain general apathy relating to the arts which has existed for too long a period, the necessity has but seldom arisen. However, it is to be hoped that the late extension of the body, and the new charter granted by the Government, will enable this Academy for the future to fulfil all the functions for which it was established, and to maintain its proper position as a Fine Art University. I confess I have undertaken no easy task. I shall, however, perform it to the best of my ability, relying upon the indulgence of those who have imposed this duty on me.

That particular branch of the Fine Arts to which I have the honour to direct your attention this evening—Sculpture—is generally known as the second eldest of the three sister arts—Painting, Sculpture, and Architecture. To Painting is ascribed the first place, as drawing is the foundation of all art, and designing in sculpture or in architecture cannot be effected without its knowledge—therefore it is primary. Sculpture comes next—as purity of outline and correctness of form, which can only be acquired by a sound knowledge of drawing, constitute its peculiar excellencies. Architecture, though last not least, partakes of the peculiarities of both, picturesque grouping and grand and pure outlines of form being its necessary adjuncts. It would be tedious and unnecessary to refer at this time to the rise and origin of sculpture, and the various theories that have arisen as to the occasion or the country that gave it birth; suffice it to say, that it proceeds from an origin so remote as to leave it a matter of doubt and a bone of contention amongst the literati: the latest discoveries at Nineveh by Layard refer us to a period sufficiently distant to show that it was practised with no mean power at a time of the world's history coeval with Moses; traces of it are to be found in every part of the globe explored by man; even in what were supposed to be the primeval forests of America have lately been discovered the remains of cities and habitations with many elaborately carved fragments in both stone and ivory, sufficient to show that the art was known and practised at a period and by a people that as yet defy conjecture. But, passing over all intermediate periods, permit me to lay before you a brief summary of its progress from that country where it reached its apogee, some 400 years before the birth of our Lord, to the present time.

Greece, if not the country of its birth, was at least its cradle, and the country of its adoption; there first it reached its true and real greatness, a greatness unsurpassed, if not unequalled, in every other age and every other clime. In the most ancient of the Greek republics, the little state of Sicyon, since ever known by the endearing appellation of "Mother of the Arts," occurred that touching incident which tradition says was the origin of modelling. Known, as it doubtless is, to many of you, yet the story is so beautiful that I shall take the liberty of relating it. "The daughter of a Sicyonian potter, named Dibutades, about to part from her lover going on a distant journey, remarked the profile of his features thrown upon the opposite wall from a lamp, by whose light she watched him as he slept. Affection inspired her with the idea of fixing the outline there, by tracing round the shadow. This outline her father afterwards filled up with clay, thus forming the most ancient medallion on record." This story is related to have occurred 1200 years before the Christian era. In the island of Samos we have the earliest record of a sculptor in brass, named Rhœcus, about 700 years before Christ; and, about a century afterwards, flourished in Chios one Molas, remarkable for having been the first artist on record who introduced the use of marble, a material without which sculpture would never have attained its perfection.

Various names of sculptors, more or less eminent, might be mentioned as having distinguished themselves in the different states of Greece, between this period and the time of Pericles, when the art of sculpture may be said to have reached a limit beyond which it has been found impossible to pass. I shall not, however, detain you at present by further reference to this period, save to remark that there are at present two colossal busts of Hercules and Apollo in the British Museum, which are supposed to be the work of two brothers, Dipænus and Scyllis, of Sicyon, 600 years before Christ. We come now to that period on which all lovers of art delight most to dwell—

the age of Pericles of Athens, when the brightest names that illuminate the history of the world shone in their original splendour with a brilliancy so refulgent, that the shadow of their glory still brightens the horizon of history. Names most illustrious in war and peace, in art and science, in literature and philosophy—the age of Sophocles, Euripides, and Æschylus; of Themistocles, Miltiades, and Xenophon; of Socrates, Anaxagoras, and Plato; of Phidias, of Myron, and of Colamis. Phidias, the greatest name that sculpture has enrolled on her list of fame, may almost be called the father of sculpture; before his time it was merely struggling into existence. It existed, but he gave it life and form, and laid down those canons and laws for the guidance of others which have never since been departed from; possessed of a mighty genius, a poetical inspiration, and a philosophical mind, he raised Sculpture to take her place amongst the very highest forms of art, communicating to it all the power which the highest poetry has, for elevating the imagination, or touching the heart. He first introduced, in his execution, a softness to flesh and a flow to drapery unknown before his day. A description of one of his most colossal works may not be out of place here. Flaxman thus describes his statue of the Olympian Jupiter: "The great work of this chief of sculptors, the astonishment and praise of after ages, was the Jupiter at Elis, sitting on his throne, his left hand holding a sceptre, his right extending victory to the Olympian conquerors, his head crowned with olive, and his pallium decorated with birds, beasts, and flowers. The four corners of the throne were dancing Victories, each supported by a Sphinx tearing a Theban youth. At the back of the throne, above his head, were the three Hours, or Seasons, on one side, and on the other the three Graces. On the bar between the legs of the throne, and the panels or spaces between them, were represented many stories—the destruction of Niobe's children, the labours of Hercules, the delivery of Prometheus, the Garden of Hesperides, with the different adventures of the heroic ages. On the base, the battle of Theseus with the Amazons. On the pedestal, an assemblage of the gods, the Sun and Moon in their cars, and the birth of Venus. The height of the work was sixty feet. The statue was ivory, enriched with the radiance of golden ornaments and precious stones, and was justly esteemed one of the wonders of the world. The body was naked to the cincture, the lower limbs clothed in a robe gemmed with golden flowers; the hair also was of gold, bound with an enamelled crown; the eyes of precious stones; the rest of ivory. Notwithstanding the gigantic proportions, every part was wrought with the most scrupulous delicacy; even the splendid throne was carved with exquisite nicety." Pliny and Pausanias have also given us minute and laudatory descriptions of this statue. This magnificent work has long since perished, and all the statues which he executed in bronze, a material in which he is said to have excelled, have also disappeared.

And here (to digress a moment from the subject) it might not be out of place to inquire how far the moderns are right in employing bronze as a material for perpetuating the forms of those whom they wish to hand down to posterity in preference to marble, under the impression that it is a more enduring material. No one, I believe, would venture to advocate its use on any other grounds, particularly in this leaden-hued climate of ours, where it is absolutely necessary to employ some bright and light-looking material for our public monuments, in order to relieve them from a background of dirty bricks, or still dirtier atmospheres. All the great works of antiquity, with but very few exceptions, that have been executed in bronze, exist no longer. Of the thousands of bronze statues, equestrian and others, that adorned imperial Rome in the time of the Cæsars, but one remains at present—the statue of Marcus Aurelius, on the Capitoline Hill. The value of the material, and the uses to which it can be applied, must render it ever an easy and desirable prey to the spoiler, whether of home or foreign extraction. Time is less cruel and destructive in his ravages than man; and even the fury of the iconoclast is exceeded by the rapacity of the avaricious.

To resume my subject:—It is pleasant to reflect that sufficiently numerous instances of Phidias's works remain to us in marble to enable us to judge personally of the unsurpassed beauty of his style and the exquisite finish of his chisel. Who can gaze without awe and wonder at the statues and reliefs from the Temple of Minerva, the original marbles of which are now in the British Museum, and casts from which decorate these walls and occupy positions around you? The Elgin Marbles have, indeed with truth, been designated as the richest treasures of the arts existing in Europe. About this period were likewise produced those glorious works and models of perfection—the Apollo (commonly called Belvidere, from the name of the *salon* which it occupies in the Vatican), by Calamis, and the Discoboles, by Myron. Among the famous sculptors who immediately succeeded Phidias, we have Alcámenes, the sculptor of the Venus Aphrodite; Ctesilaus, sculptor of the immortal "Dying Gladiator;" Scopas, author of the beautiful group of the Niobe at Florence; Syrippus, Praxiteles, and a host of others the mere enumeration of whose names would occupy more time than I can at present give to their relation.

Another era of art arose when Greece fell under the power of

Rome, and though some of the most beautiful works of antiquity were produced after that period, yet art—sculpture in particular—was on the decline, and finally succumbed about the time of the Antonines. The beautiful group of the Cupid and Psyche is supposed to have been executed after the reign of Augustus. It would take too long on an occasion like the present to follow too minutely the history of the arts during their struggle almost for existence during the ravages of Rome by the Goths and Huns, and the still more destructive ravages of the iconoclasts in the fifth and sixth centuries, when the grandest and noblest works of ancient art were destroyed, and even its genius assailed with unrelenting persecution.

I will come now to that period when art, chased from Greece, so long her own peculiar land, and driven hither and thither, partaking of the fortunes of rude and unpolished races, sometimes not having a spot of land on which to rest her weary feet, found at last a new cradle and protector in Italy. So late as the year 1480, Pope Eugenius IV. had a catalogue made of all the remains of ancient sculpture then existing in Rome, and incredible as it may appear, but five statues were found in all Rome. Those who have seen modern Rome must be struck with surprise at the industry that has been displayed in digging out of the bowels of the earth, or out of gigantic ruins, the countless statues and other works of ancient sculpture which now fill its palaces, its halls, and streets almost to overflowing. The Laocoon, that wondrous work of genius, was only discovered in the year 1506. Time will not allow me to do more than allude to some of the most illustrious names who preceded Michael Angelo (the second Phidias); Pisano, Brunelleschi, Ghiberti, Donatello, and Ghirlandajo are names illustrious in the art, and dear to every artist; but the glory of them all was so far exceeded by that of Michael Angelo that they are not, perhaps as universally known. A close similarity exists between the periods of the rise of Art in Greece under Phidias and its revival in Italy under Michael Angelo. Pericles found a successor in the Medici, Phidias in Michael Angelo, and Praxiteles in Canova. But I must not now detain you by an examination or description of works so well known as those of Michael Angelo, save to refer to his statue of Moses, in the Church of St. Pietro in Vinculis, at Rome, his monument to Julian De Medici, at Florence, and his group of The Pieta, in St. Peter's, as being the finest and grandest of his works. The art deteriorated immensely under his successors, and almost fell asleep during the greater part of the eighteenth century, until revived again by Canova and Thorwaldsen.

These names bring us down to our own time, and remind me that I have but a short space left to allude briefly to the state of sculpture in these countries. The arts were doubtless first introduced into Britain by the Romans, as numerous remains of mosaics, bronzes, and pottery were found in different parts of the kingdom testify; but it was at a time when art was on the decline, and its professors artists of inferior skill and little estimation. It is a curious fact that for more than two hundred years after the departure of the Romans the art of casting in bronze was known and extensively practised; after that period it completely died out and was revived only in our time, as Chantrey and Westmacott were, I believe, the first that cast bronze statues in England, and they were obliged to build and fit up furnaces specially for their own use, there not being at the time a single bronze foundry in the kingdom. It is now, however, extensively practised and brought to great perfection, both in England and Scotland; but in this country there is not, and never has been, a bronze foundry established.

To the improvement of architecture in England, from the time of William of Normandy, sculpture is mainly, nay entirely, indebted for its introduction and progress; for it is only in connection with cathedrals and great public buildings that we find any trace of it for many long years; but it reached a very high pitch of excellence in this association with the sister art; witness in particular the Lady Chapel of Westminster Abbey, built in the reign of Henry VII., and the numerous remains of bas reliefs, cariatydes, reredos, and altars that have survived the iconoclastic fury of the reigns of Henry VIII., Edward VI., and Queen Elizabeth. Flaxman justly remarks, "That the commands for destroying sacred painting and sculpture effectually prevented the artist from suffering his mind to rise in the contemplation or execution of any sublime effort, as he dreaded the prison or the stake, and reduced him in future to the miserable mimicry of monstrous fashions or drudgery in the lowest mechanism of his profession." The present school of sculpture in England may be said to have begun with Banks, a sculptor of great eminence, in the early part of George III.'s reign, and to have increased and multiplied since then, until the long roll of illustrious names would occupy too much of our time at present even for enumeration; but it would, indeed, be a mistake not to single out one name from them as an illustration of the exalted position to which sculpture has reached in Britain—a name no whit inferior to the most illustrious sculptor of any age or any clime—a name worthy of being placed beside the revered names of Phidias and Michael Angelo—need I say that I mean John Flaxman? Well might Sir Thomas Lawrence say, as he did in his address to the students of the Royal Academy in London,

"That the death of this great man was a deep and irreparable loss to art—to England and to Europe." His designs from Homer, Æschylus, and Dante, alone are sufficient to immortalise his name and his country, and his group of the Archangel Michael and Satan, one of his last works, is a glory to his nation.

(To be continued.)

THE CATALOGUE OF "THE LOAN COLLECTION" SOUTH KENSINGTON MUSEUM.

From the recently issued fourth and fifth parts of this remarkably valuable and instructive book we extract the following:—

MAJOLICA WARES.

Whoever has visited the district of Central Italy, which, in the 15th and 16th centuries, was the especial seat of the majolica manufacture, will scarcely fail to form a higher estimate of the power and vitality of the great uprising of the arts, which then and there happened, as part of the general revival of all arts and learning in Italy. It is, indeed, wonderful that in a district scarcely less rocky and barren than the highlands of Scotland, in which the cities and castellated villages were fewer in number and less populous than those of most other districts of Italy—harassed, moreover, with unceasing feudal warfare—a decorative manufacture should have taken root and flourished with a success to which at this day even it is difficult to show a parallel in any country. Such, however, was the fact, for although majolica wares were produced, at one time or other, in almost every city and district of Italy, it was only in the duchy of Urbino, and the circumjacent districts of the Romagna, that this industry attained to paramount development as a great national manufacture.

It has been a favourite occupation latterly amongst connoisseurs and writers on ceramic subjects, to endeavour to find out and refer to their exact localities or manufactories, the several types, patterns, or kinds of majolica ware, which have come down to us in such great and perplexing variety. It is natural that this should be the case; the vast number of monograms, signatures, &c., of artists and manufactories, to which every day's observation brings fresh contributions, was alone sufficient to stimulate the curiosity and enlist the services of collectors; nor, indeed, is this kind of study without ultimate uses. The acquisition of a body of precise information on the subject of the majolica wares, though on first thought it may seem but the trivial occupation of amateurs, is in reality calculated to be of direct practical utility. Already the manufacture of this ware has been revived, and has taken root as an established and popular speciality in our potteries, but the more refined and delicate processes and methods of the art, as practised by the old Italian masters, are as yet unknown to English manufacturers.

To elucidate the unceasing efforts of bygone generations of artists in the amelioration of their technical processes, and in the invention of novel and beautiful styles of embellishment, will then doubtless be of the greatest benefit to our modern industrial artists and manufacturers. The splendid masterpieces of the art contributed to this collection, when compared with the modern revivals of majolica wares in the International Exhibition, show at all events what ample scope there is for the posthumous teaching of the great ceramic artists of the 15th and 16th centuries through their great works which still remain to us.

Works of Maestro Giorgio, of Gubbio.—For two reasons undoubtedly the most prominent name in the list of the Majolicari, now known to us, is that of "Maestro Giorgio," of Gubbio. In the first place, he adopted the self-complacent and profitable plan of signing and dating nearly all his works, even the most trivial; and, in the second, he has the merit of having carried to their highest point of perfection the well-known metallic lustre or iridescent colours. Moreover, he was one of the most industrious and facile of workers, the great number of his pieces still extant, being an evidence of the immense quantity originally produced.

As an artist, he can only be placed in the second rank; but as a "ceramist" or manufacturer in general, he occupies the highest place; and in their peculiar direction, his wares, like those of Orazio Fontana, are undoubtedly masterpieces of the potter's craft. It is desirable, however, to insist on this distinction in any general estimate of Giorgio's talent, because during the "furore" which for the last few years has prevailed in regard to the majolica wares, Giorgio's productions have attained to a point of public appreciation, and consequent inordinate pecuniary value, which their intrinsic excellence as works of art by no means justifies; it is, indeed, simply absurd, and a reproach to modern connoisseurship, that the possession of the coarsely painted vulgar ware of Giorgio's later time, solely because they glitter in the tinsel finery (when so applied) of his lustre colours, should be eagerly contested often at their weight in gold!

Giorgio, indeed, was imbued with the true commercial spirit, unfortunately scarcely compatible with the art; he was at the head of a flourishing "bottega," which seems to have employed many hands, and to have been continued in full activity for many years after his

death or retirement. In the latter years of his practice, the prominent speciality of his establishment—the application of lustre colours—seems to have become the chief concern, and an entire class of wares is extant, painted by numerous artists of Urbino, Castel Durante, and other localities, which were rendered additionally brilliant in hue, and doubtless more valuable, by being picked out and heightened with Giorgio's lustres, notably with his favourite ruby tint. Whether Giorgio bought up the wares of others and re-sold them on his own account, thus enhanced in value, or whether he was in the habit of applying his lustre tints to such wares, on the account of their original producers, is uncertain; the probability is that the former was the case; at all events, it is evident that an extensive and doubtless lucrative trade was in this way carried on.

The earliest signed and dated specimen of Giorgio's wares yet known to the writer is on a plate in the collection of Robert Napier, Esq. It is dated 1517, and the latest authenticated work is of the year 1587. Of the numerous pieces executed betwixt these dates, those of the year 1526 are the most abundant. Numerous specimens, however, are known, undoubtedly by Giorgio, obviously painted prior to 1517; it may be presumed, indeed, that his labours commenced as far back as 1510, or even earlier.

Giorgio's early wares are in every respect the most excellent. In his later time, as has been said, he became a mere manufacturer, producing on a large scale, little solicitous as to the artistic merit of his works. To the last, however, the magnificent colours and striking effect of his wares are very noteworthy.

His lustre pigments are of two varieties; first, the ruby, a magnificent full crimson tint, with a brilliant metallic "reflect," or iridescence; the other, an iridescent golden tint, changing colour with every varying angle at which the light strikes it. Nothing can exceed the brilliancy of these lustres when they have perfectly succeeded in the fire; they are far more beautiful than those of any earlier artists, but there are scarcely any two specimens of precisely the same tint, the process, especially in the firing of the pieces, being one of great delicacy and uncertainty. In some specimens (often the most elaborately painted and costly) the lustre tints are pale and weak, doubtless from the partial evaporation of the pigments in the enamel kiln, whilst on others, of the commonest ware and most vulgar execution, these tints have succeeded with admirable force and brilliancy.

Maestro Giorgio, though perhaps not actually the first inventor of the ruby pigment, undoubtedly brought it to perfection. He seems to have kept its composition and application a profound secret, and to all appearance the process was lost shortly after 1540. It has, within the last two or three years, been re-discovered by a native of Gubbio, and is now commonly applied, by its inventor, in that city, and also at the "fabrique" of the Marchese Ginori, near Florence.

Majolica of Urbino.—Works of Francesco Xanto.—After the Gubbian artist, Maestro Giorgio, the most familiar to us of all the majolica painters, is, perhaps, Francesco Xanto; the works of this artist are very numerous, and the practice which, like Giorgio, he adopted of signing and dating nearly all his works, has given him a posthumous celebrity which the intrinsic merit of his productions does not entirely bear out. Francesco Xanto Avello was a native of Rovigo, but his works were apparently all produced at Urbino. The earliest date as yet observed on any of them is 1530, but there are many pieces extant, undoubtedly by him, neither signed nor dated, which are obviously of an earlier period. The latest year, on the other hand, is 1542; but as he appears, towards the end of his career, to have abandoned the practice of signing, it is probable that some of his undated pieces may have been executed after 1542. Xanto's works may be considered to represent perfectly the "Majoliche istoriate," and he certainly had a talent for the arrangement of his works in composition, nearly all his subjects being "pastici;" the various figures or groups introduced, being the invention of other artists, copied with adroit variations over and over again, and made to do duty in the most widely different characters. As an original artist, if indeed he can be so considered, he may be classed with the more mannered of the scholars of Raffaello. His designs are generally from classical or mythological sources; Ovid, Virgil, and Trogus Pompeius, having for several successive years almost exclusively furnished him with subjects. Ariosto was likewise a favourite author, and, curiously enough, on a plate in the British Museum collection, Xanto has put on record his own claims as a poet in a more enduring shape than the original written work itself; this plate is painted with a subject from a poem composed by Xanto in honour of Duke Francesco Maria of Urbino; the subject, however, without the inscription, might just as well have been taken for an illustration to Ovid. Xanto's execution, although dexterous, is monotonous and mechanical; his scale of colouring is crude and positive, full of violent oppositions; the only merit, if merit it be, being that of a certain force and brightness of aspect; in every other respect his colouring is commonplace, not to say disagreeable even; blue, crude opaque yellow, and orange tints, and bright verdigrass green, are the three different hues, and are scattered over the pieces in full

unbroken masses, the yellow especially meeting the eye at the first glance.

In the unsigned pieces, before 1531, the glaze is better and more transparent, the execution more delicate, and the outline less hard and black than in the later specimens.

Some of Xanto's wares are profusely enriched with metallic lustres, including the beautiful ruby tint; the specimens so enriched, however, form but a small per-centage of the entire number of his works extant. This class of piece is, moreover, interesting from the fact that the iridescent colours were obviously not of Xanto's own production, but that, on the contrary, they were applied to his wares by Maestro Giorgio, and the supposed continuers of Giorgio's "fabrique" in Gubbio. Many pieces are extant which, in addition to Xanto's own signature, nearly always written in dark blue or olive tint, are likewise signed with the monogram N. of the Giorgio school, in the lustre tint; and one specimen, at least, has been observed, which, though painted by Xanto, has been signed in the lustre tint by Maestro Giorgio himself.

Works of the Fontana Family.—The one pre-eminent name in the majolica art is unquestionably Orazio Fontana. This really great industrial artist, celebrated in his own day above all others, was the Rubens of enamel painting. It is now possible to identify many of his works, and they fully bear out the assertions of Raffaelli, that he had no equal in the conception and vigorous execution of his painted subjects, in the invention and distribution of his colours, and in calculating the effect of the fire on his wares.* Orazio should be considered rather in his capacity of ceramic artist, than in that of a manufacturer of majolica; for his finest works were most probably produced whilst working as a painter in the establishment of his father Guido.

The Fontana were a race of Majolicari, the art having been practised for generations amongst them. During the great epoch, dating from the first quarter of the 16th century to the later years of that century, the family "botega" in Urbino, seems to have successfully been in the hands of Nicolo, Guido, Orazio, and perhaps Camillo Fontana. The establishment of Guido, who was the father of Orazio, Camillo, and another, Nicolo, however, appears to have been the most famous. It was carried on probably from about 1540 till, at all events, 1565, by Guido and his sons conjointly, but in 1565 Orazio separated from his father, and established a "botega," or pottery of his own, the father probably continuing his own separate establishment for a longer period. In 1571 Orazio died, and we have no evidence to show what became of his establishment.

It is generally possible to identify the wares of this family or school with sufficient certainty, but it is only in comparatively rare instances that the pieces can be positively assigned to the respective establishments or individuals.

BELFAST HARBOUR BOARD.

A SPECIAL meeting of the Belfast Harbour Commissioners was held on Tuesday, in the Harbour-office, Corporation-square, to take into consideration the proposed harbour improvements, and to determine whether the county Down or the Antrim side of the river was the more eligible site for a graving dock. John Clarke, Esq., J.P., presided.

Mr. Boyd said the board had already unanimously adopted resolutions that a large floating or tidal dock, and a large graving dock, should be constructed, at a cost not exceeding £120,000. He now proposed "That the site of the projected graving dock be on the county Down side of the river." When the board took the large extent of ground on the county Down side, in 1854, by Parliamentary grant, a pledge was given that the ground sought to be taken was required by the increased trade of the port, reserving a free site for a Marine School and a People's Park. The county Down side was an eligible site for a Marine School and a People's Park, and he would ask, how had the Corporation kept faith with the stipulations they had previously come to? Certainly it was not by setting apart the site for a Marine School and the ground in its vicinity, as set forth in the plans lodged with the Government, and the same remark applied to their not making a suitable approach to the People's Park. The sites for ship building and repairing vessels should be so placed that they would not interfere with the mercantile trade of the port, but that each trade should be kept distinct; such was his opinion. He considered that a graving dock should be contiguous to the ship-building and repairing yards. The county Down side of the river could, he said, no more be made an advantageous site for the mercantile trade than the county Antrim side for the ship-building trade. Nature had given each its own capabilities. He pointed to the result arising out of the building of the large coal yards on the county Down side, which were never occupied when on the Antrim side. Look at what had been going on within gunshot of where they were then sitting, viz.: the ship-building yards.

* "Non ebbe pari in ritrattar bozze idea miste, distribuire i colori, calcolare gli effetti del fuoco nelle majoliche."—Raffaelli. "Majoliche durantine" Forno 1846, p. 34.

of Messrs. Ritchie, Connell, Thomson, MacLaine, &c. At the present time only one of the above firms was in the same locality, and the proprietor of that one would most willingly dispose of the site, and take ground on the county Down side.

Mr. Workman seconded the motion.

The Chairman said a deputation was in attendance representing the ship-carpenters and engineers of the port.

The deputation then entered. They handed the chairman their memorial, and stated that they represented 4,000 individuals, who desired that the graving dock should be on the Antrim side of the river.

Mr. Thomson then moved, as an amendment—"That the graving dock be upon the Antrim side." It was most desirable that the floating dock, the graving dock, and the ship-building yard should be adjacent. They could have that accommodation on the Antrim side, as 103 acres of unappropriated ground were there that would answer the purpose. He submitted a plan drafted by Mr. Allen, at his (Mr. Thomson's) request, which showed that all that was wanted could be done on the Antrim side. Mr. Coates had erected a marine foundry on the Antrim side at a cost of from £20,000 to £30,000. He (Mr. Thomson) had visited the foundry the other day, and discovered the necessity that existed for having the graving dock on this side of the river. The merchants and traders of Belfast all lived on the Antrim side, notwithstanding Mr. Harland's yard. Mr. Harland conveyed across the river 3,000 men per day, so that, if they had four ship-yards there, 12,000 men—a little army—would require to cross the water every day. The Antrim side was the proper place for the graving dock.

The Mayor (Mr. Lanyon) seconded the amendment, and said they had heard a good deal about moral obligations for placing the docks on the Down side; but the board should consider what side was best suited for the progress of trade. There was ample ground and capabilities on the Antrim side for the docks; and the graving dock should be alongside the floating and tidal docks. He thought the matter did not require much argument to convince people that the Antrim side was best suited for the proposed graving dock.

Mr. Workman said that the Down side was the better place.

Dr. Pirrie supported the motion.

Mr. Corry said that, if they thought they had not sufficient property on the Belfast side of the river, there might be found some excuse for expending a large sum of money on the other side. If they did not, without delay, set about and endeavour to connect the docks with the railways, they would be very much neglecting their duty by allowing other ports to carry off the legitimate trade of Belfast. He believed that the fault would be theirs if, before some years had expired, they had not in Belfast 5000 additional hands engaged in iron ship-building, from the extreme energy of Messrs. Harland and Wolff; and, if properly fostered, iron ship-building here would only be second to the linen manufacture. He admitted that the freight of iron, &c., was a drawback against the iron trade, but that was fully compensated for by a large supply of labour, which was to be had cheap. It was a matter of great importance to have the graving dock in connexion with the wet dock, so that light vessels would not have to cross the river. At present the London Dock Company were erecting a pontoon in their water space, to prevent the inconvenience and risk of light ships having to go into the river to a dry dock. Were there no other reason against placing the graving dock on the county Down side of the river than the risk of so many lives crossing, he would protest against it being constructed there. He would ask them, in conclusion, to recollect what happened in Renfrew a few years ago. The present proposed dock, if erected on the Antrim side, would be ample for the trade for centuries to come.

Mr. Patterson earnestly urged them to construct the graving dock on the county Down side of the river, because it was the safest course to pursue—a course which met the approval of the great majority of those gentlemen who, in former days, gave the subject their most anxious consideration, and the project had also the rare merit of being approved of by the several engineers whom they had consulted—namely, Messrs. Walker and Burgess, Messrs. Bell and Miller, and Mr. Smith. The graving dock should, undoubtedly, be placed on the county Down side of the river—that was the most judicious and prudent course. It was the adoption of a plan the best suited for the convenience of the present trade—best adapted for its future extension—best calculated to augment the future income of the harbour, and thereby conduce to the more rapid development of the trade of the port.

A vote was then taken upon the question, when there appeared for the amendment—Messrs. Lanyon, Thomson, Corry, Carlisle, Hamilton, and Henderson (6). For the original motion—Messrs. Boyd, Duffin, Cordukes, Patterson, Workman, MacCausland, Sinclair, Sir Edward Coey, Dr. Pirrie, and the Chairman (10).

The original resolution was, therefore, declared carried.

The meeting then separated.

OUR SANITARY REFORM CAMPAIGN FOR 1863.

(COMMUNICATED.)

ALREADY may be noted the symptoms of an approaching Parliamentary Session. The advertising columns of the morning journals now teem with the usual formal notices of Railway Bills, Improvement Acts, and Market Regulation projects. Statesmen, too, in after-dinner speeches, and semi-official organs, in sub-leaders, slyly insinuate what may probably be the leading *pieces de resistance* to be laid on the table of either House for the digestion of the assembled senators in the latter days of January next ensuing.

It is time, then, Irish sanitary reformers should look around them to discover, in the legislative horizon, what is there which interests them—what measure or law are they concerned in promoting—what statesman, or set of statesmen, should they rally to as the leader or leaders in the march of useful, salutary reform.

In a lecture recently delivered in this city by Dr. Stokes, the Irish sanitary reformers are grotesquely described as asserting that if they could "only get a government sufficiently enlightened to let them have their own way, typhus and typhoid fevers, cholera, diphtheria, and dysentery would cease to exist." Where the learned Doctor has found these sanitary reformers of large assertion we will not stop to enquire. Fanatics and ignorant men there are, doubtless, in abundance, to injure this, as every other good cause, by their absurdities; as, on the other hand, dry and "unsavoury" as the subject may be, it yet affords a theme for many a pleasant jest, drawn from a lively imagination, to, perchance, vary the monotony of an introductory lecture to a medical session.

Such Irish sanitary reformers as we happen to be acquainted with seem extremely rational and moderate in their views, and by no means over sanguine in their hopes: their present desire is neither more or less than what might be summed up in the sentence—"the assimilation of the law of Ireland with that of England and Scotland;" the extension to this country of every measure found necessary and established in England for the protection of the public health—a not very extravagant programme, and one which may, we should think, be subscribed to without incurring the charge of either "fantastic levity" or "sad ignorance."

The learned lecturer, in seeking for a fitting guide to direct the footsteps of his student audience to the true principles of medical science, passes over the thousands of preceding sages to come to the late excellent Prince Consort, and to quote from him that "our best knowledge must come from comparing groups of cases, one with the other, arguing from what we know to what we wish to know." Poor old Socrates, long, long ago, spoke pretty much to the same purpose; but then he was not a prince, nor the "Apollo" at whose altar we would offer incense. But, nevertheless, in this, as in most other instances, our late Prince spoke, if not originally, wisely and well, and our sanitary reformers purpose following his advice, by calling on Parliament for the long delayed extension to Ireland of the British system of births and death registration. By no other means is it in the power of scientific medical men in Ireland to fully and accurately compare "groups of cases" of the various diseases, than by having them fully and accurately recorded and analysed, as under the English law of registration. This is so very obvious, that it should occur to any man giving the subject a moment's serious consideration, and yet it does not seem to have occurred to Dr. Stokes! at least, after fully enlarging on the importance of acquiring precise knowledge of the phenomena of disease, he very lamely concludes:—"In the mean time, there is no reason why we should not employ a well-directed system of observation, which, by the gradual accumulation and comparison of facts, would lead to great results." Of course, there is no "reason why" against doing this, no more than against taking a walk, but that, we apprehend, is not the question; it is as we take it. Is it possible otherwise to attain the desired result? And then we are left in ignorance of what Dr. Stokes considers "a well-directed system." Is it something his audience were to initiate and themselves gratuitously carry out? or is it one to be wrought out in the depths of internal consciousness by learned professors? Perhaps Dr. Stokes feared to be confounded with the "ignorant" and "unsavoury" sanitary reformers by condescending to advocate a Births and Deaths Registration Bill for Ireland!

This, which is, however, the foundation stone of sanitary reform and sanitary measures, must be laid by the combined exertion of Irish sanitary reformers, "learned" and unlearned, during the next session of Parliament. It must be made the question on which to test the sincerity of the Government in doing "justice to Ireland"—the question on which the future support of sanitary reformers at the hustings and at the poll will depend.

This point gained, we press forward for further assimilation of our laws with those of England. The Privy Council in England are empowered, under the 21st and 22nd Vic. cap. 97, to appoint a medical officer of health, with a salary of £1,600 per annum and travelling expenses, to inspect and report on the sanitary condition of towns in England, but mark, not in Ireland, although that country

contributes her share to the Exchequer, out of which the salary and expenses are paid. "Unlearned" Irish sanitary reformers desire to illustrate their "selfish purposes" by seeking for the appointment of a similar officer in Ireland, although well aware that being votaries of other altars than Apollo's they have no chance of obtaining the place. They are prepared to see their exertions crowned with success in the installation of some such leader of the Dublin profession as their friend Dr. Stokes.

Next, they observe that under the local government act of 1858, provision is made for changes in boundaries of townships, and for granting extended powers to municipal bodies, without exposing them to the annoyance, and the ratepayers to the expense of promoting a private bill through Parliament. The consent of the legislature to the alterations being procured for them by the Home Secretary in a public bill passed at the public expense. The ratepayers of Blackrock and Monkstown and other places have just now given notice of their intention to promote a private bill for this very purpose, change of boundary and increase of local powers; why they should have to pay some £400 or £500 for this, while on the other side of the channel, in richer England, all this is done out of the public taxes; we cannot, "ignorant" as we are perhaps, comprehend.

Neither can we see the reason why, that, under the 16th and 17th Vic. cap. 40, power is granted to English municipalities to borrow, at 3½ per cent., from Government, with twenty years for repayment, for the construction of sewers and other public works, while no such power is granted to the Irish corporations.

This then may be the work for Irish sanitary reformers during the next session of Parliament. The removal of the slur cast upon Ireland in excepting her from the operation of those beneficial measures; "and sufficient for the day is the evil thereof," until that work be accomplished our friends will probably postpone applying for an act for the abolition of dysentery, or for a repeal of the union between diarrhoea and cholera.

But who are to be the leaders for Ireland in Lords and Commons? We are not politicians, and we can therefore freely name our advocates even though they sit on opposite benches. Lord Shaftesbury has not forgotten what he said and did as Lord Ashley in the Commons for the manufacturing population of England, and we fear not would do battle for Irish workmen if called upon. Then we have, in the Lower House, the talented, the honest and outspoken sympathiser with the people, Lord Stanley, and our countryman, Mr. Gregory, who has so ably fought the battle for Ireland on so many social and utilitarian questions; and we must not neglect Sir Robert Peel, the impulsive, but yet generous and well-disposed friend of Ireland; to him, as a matter of official right, in the first instance, belongs the duty and honour of introducing the salutary measures glanced at; greatly, indeed, will we be disappointed if, with more matured experience of Irish affairs, and possessing a greater knowledge of the question she will have to legislate upon, he does not prove, in the next session, an able and efficient Chief Secretary for Ireland.

The Dublin Registration Committee, we are authorised to announce, will resume its meetings in the second week of this month, under the presidency of its philanthropic chairman, Mr. James Haughton. Many valuable adhesions to its ranks have been obtained during the recess, and the Hon. Secretary will be found pretty well provided with facts and arguments for the campaign of 1863.

BOOKS AND PAMPHLETS RECEIVED

The Massacres in Syria. By J. L. Farley. London: Bradbury and Evans. Second edition.

RECENTLY we noticed a book entitled "the Resources of Turkey," and this now before us is by the same author, who therein vividly pictures the horrors of civil war in Lebanon; the sufferings of the Maronites on the one hand, and the barbarous cruelties of the Druses on the other; Moslem fanaticism, and various massacres, the contemplation of which makes one's blood run chill. There is a melancholy interest, nevertheless, in this book, and the author has done a signal service to society in revealing to avenging powers the atrocious barbarities so perpetrated by fiends in human shape. The subject is, however, more within the province of others than it is ours to treat extensively.

The Law of Patents and Registration of Designs in Ireland.

OR late years both the law relating to the protection of inventors, has been considerably simplified, and the expense of procuring them lessened to one-fourth the former figure, causing—as in the case of the penny postage—a vastly increased and increasing business in that line, as every one of inventive faculties can now, for a trifle, protect the offspring of his genius—or gratify a hobby, probably—from piracy. Very few, however, know how to go about obtaining protection properly, and with the least attendant trouble and

expense. The best policy is, therefore, to consult a respectable, qualified agent; and, as the author of this excellent little work (Mr. James P. Byrne, of 4, Lower Ormond-quay, Solicitor and Patent Agent), has proved himself thoroughly acquainted, not only with the patent laws but the routine, we feel satisfied that with him our Irish inventors would be in good hands.

Transactions of the Institution of Civil Engineers of Ireland, for 27th Session, 1861-62.

THOUGH not as copious as might reasonably be expected for an annual record of the proceedings of so important a professional Institute as this, nevertheless, the little volume just issued shows both *mind* and *matter* to a creditable extent. Some of the Papers, viz., "the Reconstruction of the Malahide Viaduct," "Description of a Fifty-Ton Crane at Belfast," and "the Action of Sea Water on Lime Mortar," have appeared in these columns during the session, and their value has, we are confident, been fully and extensively appreciated; but, in addition, are others, viz., referring to illustrating "the Light-Draught Steamers on River Volga," the construction of "the Madras Railway," and "Improvements in the Manufacture of Peat Fuel," which are highly instructive and interesting. We congratulate the Institute of Civil Engineers on both wishing to do well and succeeding fairly, and doubt not that, in the session now inaugurated, renewed vigour will be perceptible. Would that we could say as much, or anything at all, to show the anxiety of our architectural brethren to maintain an institute for themselves; but, as we have continued to urge them earnestly, and to no purpose, we believe that the best advice we can give them individually is, to become associated with the Institute of Civil Engineers, where they can pass their time agreeably and instructively, and impart information to their professional kinsmen, if they but will it.

Registration of Births and Deaths in Ireland.

THIS indispensable preliminary to the securing of complete sanitary reform, as treated from time to time in these columns, is ably urged in a recently published pamphlet, by Dr. J. Meigs Barry, from which we quote:—

"To show the great necessity that exists for sanitary reform in this city, we have only to refer to the state in which we find the dwellings of the working classes. Mr. Willis, many years since, depicted, in telling language, the condition of those homes. 'Within an area of fifteen feet' the food of the poor creatures had to be prepared: within that space they had to eat, drink, strip, dress, and sleep. In cases of sickness, the patient must, of necessity, be exposed to the greatest inconvenience; and when death releases one of the wretched inmates, the corpse must remain in the room. There is no physician of the present day who cannot verify the truth of Mr. Willis' observations; no person but must be struck with the obvious necessity that exists for the separation of the sexes. In families earning as much as thirty shillings per week, we may see the father, mother, and perhaps eight or ten children huddled together, without the slightest regard to decency. Mr. Robinson informs us that he found, on taking 184 of the worst streets, the following results:—2,102 houses occupied as tenements, containing 11,214 rooms, 14,850 beds, and 40,319 persons."

"From a return made in the year 1855, we ascertain that the houses let in tenements, to a considerable extent, were in a most unsafe condition; one neighbourhood is described as in a shocking state of filth; another as only fit to be burned, from the unbearable odour. In a square of eight houses there was but one yard—and in this yard 'a sort of sty' was erected, and inhabited by three human beings, a man and two women.' In another locality we hear of four cottages containing fifty-three people; and again, two rooms inhabited by eighteen persons. The people that exist in these places indicate every appearance of prostration. In many such abodes that I have professionally visited, no beds or furniture suitable for the most ordinary domestic offices were to be found; wretched creatures paying 1s. per week for their miserable room, and snubbing three of the four corners at 3d. to their more poverty-stricken visitors, the bedding of all consisting of decayed litter, which would be rejected from the stable as unfit for horses to repose on; so stifling is the air that a candle burns blue—the necessity for artificial light, to examine a patient, frequently exists at noonday; nor is there any means of ventilation to improve this fearful atmosphere—the odour is abominable; all filth that may accumulate from morning till night must remain upon the premises, there being no dust-pit to deposit it in, and if thrown into the street during the day the house is flied. Each morning the scavengers that go round the poorer streets and lanes have an amount of animal matter to remove quite incredible. What is the consequence of this state of things? In the best neighbourhoods the mortality is 1 in 142; in the worst, 1 in 42. Dublin, after all, is not naturally insalubrious—the mortality in some towns being as high as 40 in the 1000. But sanitary improvements have reduced this enormous waste of human life from preventable diseases to 13 per 1000 in London. To enable us to carry out Sanitary Reform in this country, such as in London, we need an efficient system of registration of Births and Deaths, and the causes of death."

The Gold-bearing Strata of Merionethshire. By T. A. Readwin, F.G.S., F.S.S. London: F. and N. Spon.

THIS pamphlet—an addendum to a paper read before the British Association at Cambridge—has for its object the pointing out "of the probability of gold-seeking in the Dolgelly district, being at no very remote date of commercial importance." It concludes with the notes of a discussion on the Paper, by Professors Ansted and Sedgwick, the former of whom says:—

"That the veins mentioned by Mr. Readwin ran rather north-east and south-west. With regard to the direction of lodes of gold mines generally, he thought it followed a good deal the elevation of the country. It was an interesting,

Important, and entirely new fact, that gold was now found at a depth of 100 fathoms in rich quantities, because it has been the prevalent opinion among geologists that gold diminished in quantity as they went downwards. This discovery would very much extend the working of mines."

Thorley's Almanack for 1863. London: 145, Fleet-street.

THIS comprehensive and handy almanack is well produced, and contains, in addition to the ordinary annual references, a diary for each day in the month, illustrations of agricultural operations suitable to the seasons, besides much that is instructive to either the professed or the amateur farmer.

Notes of New Works.

It is in contemplation to erect a new Corn Market at Stranorlar, Str. J. H. Hayes, Bart., having apportioned a site near the intended Finn Valley terminus to the purpose.

The works at the joint station for passenger traffic of the Omagh Railway are nearly complete.

Mr. Meighan (not Meekins, as stated) is the contractor for the new Coast-guard Station at Dalkey.

We understand that Mr. John Nolan, of Meredyth-place, builder, has been declared contractor for the New Provincial Bank, to be erected in College-street, Mr. Wm. G. Murray, architect. Rumour says that there has been great discrepancy in the amounts of the tenders for this work, they being only fourteen in number, and ranging from about £20,000 to £35,000 odd. This is the more unaccountable, as the quantities were supplied by Mr. William Doolin, as surveyor on the part of the Bank, and Mr. Patterson for the builders.

Mr. Dempsey, of Golden-lane, grocer, has taken the premises at the corner of Francis-street, in Thomas-street, and is fitting them up from the designs of Mr. Kearns, his professional adviser.

Varied Items.

Messrs. Edmundson, of Dublin, have been declared contractors for erecting the works of the Tanderagee Gas Company. It is expected that the town will be lighted before the middle of March.

A new bell tower has been completed at the Church of St. Mary's Clontibret, and a bell, weighing 20 cwt., the manufacture of Mr. Sheridan, of this city, fixed therein.

Additional convalescent wards to the buildings are stated to be much wanting for the Belfast General Hospital. The structure has recently undergone much improvement throughout.

At a recent meeting of the O'Connell Statue Committee, the following resolutions were unanimously adopted, viz.:—

"That when the required amount shall be available for the object contemplated; a suitable premium be offered for competing designs, open to all native and foreign artists; and that great care shall be taken in the selection of a committee, comprising gentlemen of known artistic taste, judgment, and impartiality, to make a final award and necessary arrangements for the immediate erection of the O'Connell national testimonial."

"That when a final general report of the committee, on completion of the O'Connell testimonial, shall be prepared for publication, a concise narrative of the origin and progress of the work, with a complete list of subscribers for the amount of 1s. and upwards, be also printed in a book; and that an exquisite and a correct engraving of the monumental design approved of and erected shall be prefixed as a frontispiece to the volume."

Hopes are still entertained that the Town Commissioners will be able to procure a proper site for the erection of a town-hall worthy of so important a town as Kingstown.

Miscellaneous.

FALL OF A RAILWAY VIADUCT.—SHOCKING LOSS OF LIFE.—At twenty-five minutes past eight o'clock on Friday night week fourteen arches of a viaduct in course of construction near Silchester-road, on the Hammersmith and City Extension Railway fell with a crash that alarmed the neighbourhood. At this point the railway, which is not yet completed, is carried along on a number of arches. From statements made by the persons who were assisting to clear away the rubbish, it appeared that the wet weather had injuriously affected them, and that the authorities of the line had given instructions that they should be shored up and otherwise made secure. A number of workmen accordingly commenced the shoring after eight o'clock. They had scarcely begun the necessary operations when fourteen arches gave way and five men were buried in the ruins. A number of labourers were at once procured, and they set to work to get out the bodies of the men who had fallen victims of this calamity.

COPYRIGHT IN ITALY.—"The literary convention concluded between France and the kingdom of Italy," observes the *Constitutionnel*, "is the most comprehensive one of the kind that has yet been made. Henceforth the authors of books, pamphlets, or other writings, of musical compositions, drawings, painting, sculpture, engravings, lithographs, and of all other analogous productions in literature or the arts, will reciprocally enjoy in each of the two states the advantages attributed to them by the laws of the proprietorship of literary and artistic works, and will have the same protection and legal remedy against any infringement of their rights as if the works were published for the first time in the country itself. The copyright in musical works extends to the compositions known as arrangements, based upon airs extracted from the same works. The disputes which may arise upon the application of this clause will be reserved for the appreciation of the respective tribunals."

WATERPROOF WALKS.—A new method of path-making is fast coming into vogue, and will soon be universally adopted for its cheapness, general excellence, and permanence; in fact, when once well done it lasts for ever. Instead of making the walk of loose material, on the old fashion, concreting is resorted to, by which the appearance of gravel is retained, with all its freshness and beauty of contrast to grass and flowers, and the walk itself is rendered as dry and durable as the best pavement. The *modus operandi* is as follows:—Procure a sufficient quantity of Portland cement, then with the help of a labourer turn up the path with a pick, and have all the old gravel screened, so as to separate the loam and surface well from it and to every six parts of the gravel add three parts of gritty sand of any kind—but soft pit sand is unsuitable—and one part, by measure, of Portland cement. When these are well mixed together in a dry state, add sufficient water to make the whole into a moderately stiff workable consistence, and lay it down quickly two inches thick on a hard bottom. A common spade is the best tool with which to spread it; it must be at once spread as it is to remain for ever, and a slight convexity given to the surface. In forty-eight hours it becomes as hard as a rock; not a drop of rain will go through it; and if a drop lodges on it, blame yourself for not having made the surface even—but a very moderate fall is sufficient with such an impenetrable material. Not a weed will ever grow on a path so formed; not a worm will ever work through it; a birch broom will keep the surface clean and bright, and of course it never requires rolling. It is necessary to be very particular as to the quality of the cement, for a great deal of rubbish is sold under the name of real Portland. Those who find any difficulty in procuring the genuine thing should apply to Messrs. White, of Millbank, Westminster, who are extensive manufacturers of this and other similar preparations, and can in every way be depended on. For the flooring of a green-house, fowl-house, potting-shed, or barn, this is far the best and cheapest that can be had—always clean, hard, and dry, and never requiring repairs of any kind if carefully put down in the first instance.—*Gardener's Weekly Magazine.*

TENDERS FOR THE DUBLIN CORPORATION NEW CATTLE MARKET.

Henry Hall (with Welch stone paving throughout)	£28,165
Edward Hambro'ton, do. do.	21,500
Ditto (for road only, and Calp for pavement, under cattle and pens) ..	20,610
Ditto (constructing boulders only)	18,540
E. T. Nagle (with Welch stone paving throughout)	26,412
Ditto (partly Welch stone)	24,967
Ditto (Irish boulders)	17,463
Michael Meade (with Welch stone paving throughout)	22,787
Ditto (for road only, and Calp under cattle and pens)	20,013
[Accepted by the Committee, subject to approval of Corporation, at £17,221 8s. (partly Welch and partly Calp stone.)]	
James Byrne (with Welch stone paving throughout)	19,259
Ditto (partly Welch and partly Irish)	17,864

Mr J. J. Lyons, of 26, Lower Gardiner-street, Dublin, Architect, has been appointed Agent for Ireland for Messrs. Clark and Co., of Gate-street, Lincoln's-Inn-fields, London, the eminent patentees and manufacturers of revolving shutters, brass sashes, stall board plates, &c. &c. A model of Messrs. Clark's newest patent, which is remarkable for its simplicity (all gearing being dispensed with), may be seen, and price-books obtained, at Mr. Lyons' office. Parties can have estimates from Mr. Lyons by forwarding particulars and tracings of the situations to which it is proposed to adapt the shutters.

NOTICE.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MABBOT-STREET." All other Communications should be addressed to the Editor, 26, LOWER GARDINER-STREET.

The Dublin Builder.

VOL. IV.—No. 72.

A "FLYING VISIT" TO ST. PATRICK'S CATHEDRAL.

 SAPIENT critic (?) and correspondent of the *Oxford Herald* seems to have taken "a peep" into St. Patrick's Cathedral, and, after his admittedly "cursory examination," has arrived at very sweeping and very inaccurate conclusions as to the great works in course of progress there, and with which conclusions we would not interfere—but leave him to enjoy his blissful ignorance undisturbed—were it not that his statements have found wide circulation in Ireland through the columns of a professional contemporary, which, we must remark, ought to have been better informed than to give them publicity. The article in question runs:—"It is a somewhat *strange* fact the most costly work of cathedral restoration in the empire which this *restoring age* has witnessed, should be in progress in *Dublin*, and at the cost of a private person. Mr. Guinness, it is said, is expending £80,000 upon the restoration of St. Patrick's Cathedral."

In rejoinder we must say, that this is a mere haphazard guess, for no person, however well informed as to Mr. Guinness' intentions—not even Mr. Guinness himself—can possibly tell but that the works in question may cost considerably more, nay double that amount, before completion:—

"It is, however, to be regretted," remarks the correspondent, "that he relies upon himself as *his own architect* in this important undertaking, in place of giving the opportunity to some *leader of the ecclesiastical school* of producing a work in which archaeological accuracy in the treatment of the structure might be combined with invention in the fittings."

Now we were amongst the *first* to express an opinion relative to Mr. Guinness' non-employment of a professional man "in this important undertaking," but we did so under the erroneous supposition that that worthy gentleman was possibly about to make innovations on professional duties, and "design" alterations to this venerable structure; but when we learned that his mission, undertaken with such princely munificence, was strictly one of restoration, and to place the Cathedral before the world in its original state, such as it was centuries ago—and that for the attainment of that end every facility was presented in the features of the existing structure—we conceded that technical objection. Had our critic been a reader of the DUBLIN BUILDER, which has most carefully chronicled every stage of these works, and the *modus operandi*, he would not have ventured to compromise, by his erroneous remarks, the highly respectable journal which ventilated them. He proceeds—

"The octagonal pillars of the nave are certainly *plain*, but we should imagine that there can be little question that they are original. They are now being transformed into clustered columns."

They are certainly plain, and still they are being transformed into clustered columns! What means this contradictory reference? Though we find much difficulty in dealing with it, we may remark that the piers are *not* being transferred into clustered columns; they are being restored to their original state, the shafts of the columns—in some instances still remaining—having been mostly destroyed by the bad usage to which the structure has been from time to time subjected, the original bases remaining hidden under the floor of the Cathedral. When restored, the pillars will neither be "plain," nor show "clustered columns," a single shaft only appearing on each face.

In connection with this our contemporary's learned correspondent adds—

"This proceeding may add to the richness of the general effect, and bring St. Patrick's more into comparison with the cathedrals of England; but it alters the historical appearance, and detracts from the archaeological identity of the old pile. We should accordingly have recommended a strict restoration of the ancient features, followed by as much decoration as the building would stand."

There is truly a strange jumble of inconsistencies, of vapid talk about "richness of general effect," of "archæological identity," of "restoration of ancient features," followed by "as much decoration as the building would stand;" the latter explaining the recommendation of this would-be architectural critic, who first denounces Mr. Guinness for not employing an architect, and then advances his own opinion, in very unintelligible terms, as to what he would do to render the work in question complete. We should very much like to know the author's ideas as to the amount of decoration the building would stand.

The next point of attack is directed not only against Mr. Guinness, but against the builders and their workmen, for the latter being allowed "to follow their own fancies in the foliated capitals." To that statement we can reply, from personal knowledge, that where it was practicable to re-produce faithfully the original capitals, it was done, by the aid of photography (which was extensively employed in every department of these works), and where not so, the workmen were required to model the new caps in strict accordance with the style of the others throughout, although, of course, permitted to design the disposition of the foliage—a mode of proceeding adopted from time immemorial, and never more generally than it is at the present day.

Respecting the statement that "the canopies of the tabernacle work are to be reinstated," we presume that the critic means the canopies over the Knights' stalls, which are being remodelled, to harmonize with the surrounding features. A regret, in which we most cordially share, is next expressed that "the *cursory examination* afforded of the building did not admit of entering more into details." When the *Herald's* correspondent visits Dublin again (and we hope it may be soon), we strongly advise him to spend a few hours at the Cathedral to inspect *carefully* and *leisurely*, acquainting himself with the real history of these works, and the methods adopted to carry them out, before he rushes into print, which he has done very prematurely on this occasion, fully exemplifying the proverb that "A little learning is a dangerous thing." Perhaps, too, it may afford him some satisfaction to inform him that "the Crimean window," of which he complains as inappropriate, has been removed for the last six weeks, or more, and that its refixing may be questionable.

THE SHANNON INUNDATIONS.

AN important investigation directed by government into the causes of the devastating inundations of Shannon's banks, is being held at Limerick and Athlone by Mr. Bateman, C.E., Royal Commissioner. Mr. Long, C.E., gave some interesting evidence respecting former efforts made by eminent engineers to stay the inundation, which, however, had proved unsuccessful. From the great value of land destroyed, a very considerable outlay would be justifiable, provided the evil could be remedied. For several months in the year some portions of the inundated fields were not visible at all. With respect to the gauges of the increase or decrease of the floods, some of them could not be relied on. It was his duty to refer to them from the year 1835, and it was his experience that the gauges were generally incorrect. The registries were not always put up with accuracy, and he found it necessary to correct some of them.

PURE (?) WATER AT KINGSTOWN.—We (*Irish Times*) have looked in vain for some action on the part of the Glashule Commissioners, in reference to the scandalous condition of the stream which runs to the shore at Sea Bank. The stream becomes nothing but an open sewer once it enters Glashule, and yet it is the only supply of water to a large population. The water, in its present state, is calculated to create all manner of diseases; and that the stream should be left as it is, is a positive disgrace to everyone who has any authority in the district. [Our contemporary may have perceived that this deleterious nuisance was exposed in a very special manner in a recent number of the DUBLIN BUILDER. Perhaps some dyspeptic commissioner has discovered medicinal qualities in this water, and desires to preserve "the spa" for the good of humanity generally? If so, we would say give him plenty of it! and undiluted.—Ed.]

CONVENTIONALISM IN ORNAMENT.

By JOHN P. SEDDON, M.R.I.B.A.

✓ THE rise, the maturity, and the fall of the Gothic style is strikingly marked by the energy, the luxuriance, and the languor successively observable in the ornament of those several stages, and it is an extremely curious fact that the plants copied in its sculptured foliage were in the same succession, the opening bud, the developed leaf and flower, and the flaccid seaweed or languid thistle tumbling into decay. The progress of Gothic architecture was itself one homogeneous growth, which ran its course from youth to age evenly and without marked breaks, although for convenience we have arbitrarily divided it into "Early, Middle, and Late Gothic;" and while we use the same nomenclature in describing its ornament, it must be borne in mind that they all insensibly arose out of each other, as the successive stages in the life of the plants themselves whence they drew their inspiration. This is very observable by merely turning over the admirable plates in the 5th vol. of Viollet le Duc's "Dictionnaire raisonné de l'Architecture," under the head of the article "Flore," which I heartily commend to the careful perusal of those desirous of following out this subject, as all who have to do with designing or executing ornament should do. He there gives in succession a sturdy capital of the date 1180 A.D., still half Romanesque, with its square abacus and lingering Corinthian arrangement, but with, instead of volutes, crisp stiffly-curved fronds of the fern, as the young plant pushes itself out of the ground with the full sap-vigour of the spring, and opposite he shows the natural type from which it was evidently conventionalised. Next you have the simple plantain leaves as gathered by their streams, and as orderly arranged round and closely clasping the bell of a capital, showing the method in which the peculiar treatment of the stems of the developed Gothic capital arose, and of which I shall have occasion to speak again; as also of the planting of the leaves on the extremities of the same, and later upon the horns which project from the capitals, and which were derived hence: these, by the way, while much copied at the present day, seem to be little understood. We next see the lily type, besides some of the glorious conventional ornaments of the Early French style taken from it, and note the splendid character of the curves, strength in the stems, and the temperance throughout. We find as we proceed onwards to the complete Gothic, the full-fledged oak, ivy, maple, and vine; and lastly the nerveless seaweed, emulated in the florid extravagance of the Flamboyant, wreathed with all the grace and lack of self-restraint of its type, as flung hither and thither at the list of the waves. You may see the same for yourselves in the valuable collection of casts at the Architectural Museum, which possesses fine examples of all this same French ornament, and of course a still larger number of English examples, starting from our Norman or Romanesque, and thence onward to our insular Early English style, as at Lincoln and Ely, Stone Church, &c., and the far finer work in my opinion of Wells and Llandaff, which are almost identical; the naturally treated foliage of the Decorated, and the crumpled nondescript work of the Perpendicular.

In point of conventionalism the Early Gothic is in all respects the finest, as indeed I believe it to be in comparison with every other class of ornament. I should give the palm, if it were necessary to choose between the several local developments, to the Early French, which indeed seem to be the favourite style of work among our Mediæval architects and carvers at this time: it is, *par excellence*, stone foliage. One would expect, if the Middle Gothic carved foliage of Rheims west frontal, or English Decorated work, were painted green, that an epidemic would soon appear among the cattle, which would assuredly browse upon it; but I suspect verdigris would be wasted upon the knobby branches at West Walton, or the stiff scroll-work upon stately Laon. All Early Gothic ornament is properly and sufficiently conventionalised, but there is a very great variety in its local developments. I have noticed a very broad distinction between that in the west and east of England—this is in its modelling and arrangement, for both are evidently from the same type—what it may have been I cannot say: many conjectures have been made, but I do not think it is a matter of importance, for whatever it may have been, it has not been followed into minutiae. To the foliage of Wells Cathedral, being well-known, I may refer you, to show what I mean; although I consider that of Llandaff far finer, and I do not think that I shall claim too much if I say that it is unsurpassed; but the whole of this western work is well worthy of study; I found a most interesting series at St. David's in every gradation, from the Norman cushion capital to the enriched Early English of this particular class.* Curiously a great many capitals are left unfinished, and only boasted out, as if their carver had died, and no inferior hand had been allowed to complete his work.

The leaves of the Early Gothic foliage are mostly trefoils upon

broad succulent stems, with occasional bosses of berries or buds; the external edges or boundary lines are as it were too small to allow of the space of the leaf to lie flatly between them, and the centre rib line is too long, so that the surface of the leaf is obliged to double itself up transversely and longitudinally. This peculiarity is much more marked in the centre than in the side divisions of the leaf, so that it is obliged to get into a regular de:it in the middle, and the centre rib has to dive into it like a snake, and rise out again into a complete hump, before it can get to the end of the leaf as it ought to do; and if you can imagine the leaf to be one you could gather and press under a weight, it must be crumbled into folds: yet with all this complication, it is a perfectly symmetrical leaf—at least it is evident that its rib is central, with similar halves on either side. It is true that there are often more leaflets on one side than the other, and constant variety in the forms; yet not more than you will find in the leaves of every ivy-bush, not two of which are alike, yet all of which point to a certain typical form and law of symmetry, and each leaflet has its centre rib and halves, and room to expand from its stalk. Now it may seem that I am pointing out very simple and self-evident matters, which all can see for themselves, yet I assure you I do not think that I have ever seen a single modern copy of this class of work in which all these essentials are not more or less neglected. Just the general effect has been attempted, with a certain degree of success; but examine any single leaf, and ten to one it has no symmetry, or its rib is carried down the stem all on one side, leaving too much room for the leaflet on one side, which therefore looks bloated, while the opposite one is altogether starved, and has no room, and looks stuck on afterwards as an after-thought, and the depression in the middle leaf is a mere gash, as if the chisel had been thrown at it; and the usual bulge on the side leaflet does not rise with the central fibres as it ought, but having got all into the wrong place, gives them the appearance of having the mumps. But when the group is a complicated one, take the trouble to look for the stems, and you will surely find that half the leaves have none at all; and whereas in old work you might unravel the whole group, the modern cap turns out to be a mere imposture, made to look like an old one at a considerable distance, but it will bear no close inspection. When you come to the late class of Flamboyant or Perpendicular leaves of the most complicated description, and which used to be the favorite class of work until the modern fashion for the Early Gothic came in. Look at an old poppy-head; among the thousand knobs and knots, rivalling its seaweed type in crumpled texture, all have their true meaning and form, and the leaves are symmetrical ones, that you seem as if you could gather and spread out if you took the same pains that is required to do the same with the natural specimens. But a modern poppy-head generally looks as if it were a structure of tape afflicted with a rash; try to unravel that, and you have a task which would have puzzled Penelope.

I remember seeing at Norrey, near Caen, a capital (an Early one, by the way) decorated with foliage evidently taken from a crinkled cabbage, in which all its marvellous modelling was rightly conventionalised and thoroughly worked out; nor need this seem astonishing, because a carver who can thoroughly draw and model a single leaf, can with more time and patience do the other also. Why then can, or rather, do not our carvers do the like (for I am sure they might easily do it)? For this reason, that they never take the trouble thoroughly to work out and conventionalise one of the simplest leaves. They will do you to order whole arbours of oak or ivy, or whatever you like. "Crinkled cabbage would be nothing to them; oh! they know it all by heart—have they not learned their trade—though, by the bye, I cannot conceive where, for I never see in their studios any appearance of even the apprentices being set to draw or model from nature; occasionally one finds a cast of a natural leaf or two, and some casts from old work, and not too many of these either. There is not time now-a-days to study rightly anything; so the masters carve foliage, nay even figures, with angels and archangels to boot, like the German professor, from their innate consciousness of what they ought to be; and the apprentices carve from their master's work, without so much as the wing of a goose being put before them to improve their ideal conception of the "mighty pens" of St. Michael; until they also have learned their profession, and become themselves masters in Israel. I will allow, indeed, that of late a school has arisen which gives us a very fair imitation of Early French Gothic conventional foliage, and one does rejoice much that so manly and vigorous a type should have been selected; but then it is not carried out as the old designers would have done, by seeking and developing for themselves fresh types from nature. So that it has already degenerated into mannerism; and in the search for piquancy, the leaves have begun to look like ornamental glove-stretchers; and I am sorry that in many otherwise fine works in the International Exhibition I notice there is a great admixture of an element that seems to me to be like the rococo of Louis XV., with its shells and knucklebones, over again. This is conventionalized indeed, but that of a class that is "at variance with the strict canons of taste and propriety."

* But at Llandaff are the purest and most graceful specimens I have seen, the bell of the capitals is unusually long; there are none of the transition specimens such as at St. David's, but there are some simple examples which seem to be conventionalized from the heart's-tongue fern with as consummate art as the richer and more elaborate ones.

But I have been pointing out rather what is not proper conventionalism than what is, while I anxiously desire to give some satisfactory explanation of what is the "artificial treatment" which at the outset of this paper it was stated is "requisite to maintain consistency with regard to the material purpose and position of ornament," and having referred mainly to carving in stone, I will for the sake of simplicity confine myself to that. I think it consists principally of *knowing when to stop*, for I find that our own carvers understand conventional and natural ornament as two distinct irreconcilable things. If you ask them (as the committee of the Architectural Museum asked of those who competed for their prize for a capital from the hawthorn type) for conventionalised nature, they are utterly in the dark. They will reply, they can give you Early English or Early French, Decorated or Perpendicular, conventional ornament or natural—as you please; in which case you get either the ordinary copies of old work, or thin metal-like looking stuff, that provincial papers go into fits about, assuring their readers that the enlightened carvers in *lae frenzy* roamed all the woods and hedges in the neighbourhood, and immortalised every weed. But in the case of the hawthorn, for which the puzzling addition of conventionalism was requested, in this instance, it was evident by the results of the competition that this was understood to mean that it was to be as unlike the real thing as possible, and the getting a spray of the plant to look at was deemed to be perfectly unnecessary.

Now to make in stone a good conventional copy of a leaf requires no search into innate consciousness, but simply to have a leaf before you, to select such features of it as can be well represented in the material, and to omit those that cannot be so. You can give the outline and form, then let us have it accurately and truly—but the thinness, leave that to the metal-worker. You can give the general modelling; be careful to give this truly—but not the minutiae, which in the position your work is to occupy would be lost or look fudging. We do not care for the jagged edges and veining on the surface,—give us the heart and spirit of the thing, the flow and the grace of the curvature. Do not let your leaves loll about, but be planted firmly on their stalks; and let the stalks be well rooted at their base, and spring as if they would go straight upwards until dragged down by the weight of the leaf, like a piece of whalebone with a stone at the end; then you will get a line like those in the draperies of the early painters of Italy. Attend to this, particularly in the stemming of the horns of foliage in the bells of your capitals, which are always right in old work, and always wrong in modern. And last, and not least, get gradation everywhere; for if you take sections through different parts of either leaf or stems of good class, you will find it never in two places alike, and always to have a clear, definite, and beautiful curvature; while you may cut across a modern stem in a dozen places, and hardly find the section vary, and one taken through the leaf generally resembles that through a dilapidated batter-pudding. The true and somewhat fair excuse for this hurry and want of precision in modern work is the competition, which forces a large amount of work to be done in a very limited time and for a very small price. Now architects have the remedy in their own hands: let them be content with a very little ornament, if necessary, and seek quality instead of quantity,—there is plenty of talent among our carvers, they only want to be shown what is wanted, and fairly paid for doing it, and they will soon be able to do it. But then architects must be able to show them what they really do require, and must learn to design and model themselves before they can teach others.

Better however than the best of foliage, is art that tells a tale, and expresses something more than dumb nature, however well it may be conventionalised; let us therefore determine to get as much as we can of sculpture and painting of a higher class into our buildings, then we can spare some of the foliage; but whatever we have, let us take care that it be of the best.

SPECIFICATION QUESTIONS.

ARK SHUTTERS DRESSINGS?

As may be seen by referring to our report in another column of a "builder's action," a technical question was raised in court as to a contractor's right to affix shutters to opens for which complete "dressings" were, in general terms, specified by the architect. The architect maintained that "dressings" was a proper term, and included all the appendages of architrave, elbows, backs, soffets and shutters; and he produced a witness, another professional architect, to prove that by such a term, *shutters might* reasonably be inferred. The contracting builder defended his right *not* to execute shutters unless *distinctly* specified; and produced one architect, who deposed that they were *not*, by the custom of the profession or trade, contemplated in the aforesaid term; and another, who stated that neither "dressings" nor "trimmings" would be understood to include the provision and fixing of shutters. As for our own part, we

experience no difficulty in deciding that "dressings," as applied to *internal* carpentry work at all, is a misnomer, "trimmings" being the proper and the universally-acknowledged trade term for such; while the former is only applicable to the *external* decorative accessories of window or door opens, whether executed in *stone, brick, or cement*. Furthermore, we believe that a window may be completely trimmed (or say "dressed," for argument sake), without any shutters at all, the latter being articles of utility mainly, and whatever of ornamentation they contribute to the whole, finding an equivalent substitute in a jamb lining.

Again, the adjunctive term "complete" is vague, and such a one as could only afford grounds for the formation of an estimate by anticipating the architect's "*intentions*"—which, as a learned counsel for the defence observed, was a dangerous principle generally, as a certain place was said to possess such a pavement—inasmuch as that one architect might consider a window completely trimmed if it had no panelling or mouldings, whereas another would regard them as indispensable. In short, how is a surveyor to take out the quantities and price, item by item, correctly under such circumstances? Failing which course, a contractor is left to "jump" at his estimate—a perilous feat sometimes; for we know that "if the blind lead the blind, both are apt to fall into the ditch." With all respect for the ability of the gentlemen who deposed otherwise, we give ventilation to this opinion, and court controversy thereupon from those who either only partly agree with or totally dissent from us.

THE PICTURES AT THE INTERNATIONAL EXHIBITION.

MR. RICHARD REDGRAVE, in a report to Her Majesty's Commissioners for the International Exhibition of 1862, in reference to the removal of the pictures from the various galleries, says:—

It may be worth while, for future information, to record the precautions adopted. The substantial brickwork of the galleries had been completed some months before the pictures were received into the building, and had had full time to dry. The walls were lined throughout with wood planking, nailed to battens, so as to have a clear space for air between the planks and the brickwork, and the whole then canvassed and coloured. Prior to arranging the works of art, and as an additional precaution, large fires in pipe-stoves were kept burning night and day in the galleries, both in the principal ones for oil pictures and in the smaller side galleries for water-colour paintings. For additional security, the water-colour paintings, as being the most delicate, were so hung as to leave a clear space for the circulation of air between the back of the picture and the boarding, and in the lower rank, where this space was necessarily small, I had your sanction to the works being backed with painted cloth, quite impervious to the damp. Every precaution also was taken in all the galleries to prevent any direct sun rays from falling on the pictures, and to subdue the light in those rooms appropriated to water-colours; while to guard as much as possible against the dust, the whole floor was covered with coco-nut fibre matting, and rails placed to keep the spectators from approaching within four feet of the pictures.

A BUILDER'S ACTION.

In the Queen's Bench, on Tuesday and Wednesday last, a record was heard before Judge Hayes and a special jury, in which Mr. Walter Doolin, of this city, a builder, sought to recover from Mr. Doherty, of Lower Dominick-street, solicitor, a sum of £99 odd, alleged to be a balance due to plaintiff on foot of contract and extra works in the rebuilding and restoring of three houses in Lincoln-place, one of which had been some time since destroyed by fire, and the two others injured to a considerable extent by the same calamity. A sum of £35 comprised the balance due on contract, and the remainder of the amount above stated was charged for extras. Defendant pleaded substantially that he was *not indebted*, and claimed the £35 as a set-off for works omitted (a list of which was given in a document of objections); also that the extras were partly volunteered by the plaintiff to be done without charge, and partly formed portion of his contract. It appeared that the premises in question were insured for £570, but that Mr. Doolin's first estimate for executing the works of rebuilding and restoring, according to the plans and specifications of Mr. Charles Geoghegan, architect, being £620, it became necessary to reduce the expenditure to the level, or thereabouts, of the insurance money, and accordingly an addendum of omissions and deviations from the original drawings was placed at foot of the specification, and a contract entered into for £540. The

questions involved between the parties (in addition to the main ones above referred to) had reference chiefly to the quality and quantity of the work done to alleged discrepancies between the drawings and specification, and inconsistencies in both; also, as to the old materials being the contractor's or the owner's property.

The plaintiff, in his examination, maintained that he had fulfilled his contract faithfully, where practicable, and where not so, by reason of the provisions on the drawings or in specification, that the necessary deviations were as costly, and more so; and that, although it was not his intention to have charged for the extras until he found defendant objecting to pay the balance of his contract, still those extra works were necessary, and he had authority for executing them. His charges were moderate.

Plaintiff's counsel produced documentary evidence—viz., a promise by Mr. E. W. Martin, whom Mr. Geoghegan stated to be his clerk, to pay for the extra works required.

Mr. Geoghegan, the architect, was examined at considerable length, and testified that during the progress of restoring he visited the works and objected frequently to the manner in which plaintiff was executing them—pointed out the portions not in accordance with the specification; but plaintiff did not seek to remedy them, and treated him rudely. He (witness) disputed his client's right to pay for extras generally, as they were not ordered for him, though he would concede a few of the items.

Of the professional witnesses examined on plaintiff's behalf were Mr. Gribbon, who had fully valued the work, and believed that plaintiff's claim was legitimate and fair, and did not consider that the word "dressings" was a proper term to apply to the internal fittings of a window, or to window shutters therefor; also, Mr. W. Murray, who said that neither "dressings" nor "trimmings" reasonably implied shutters—that the work, considering the class of house, was fairly done throughout, except the plastering, which was defective, &c., &c. On behalf of defendant, Mr. Mulvany, architect, stated that in a contract of the kind, "dressings" might reasonably imply shutters—that the work was objectionable in many respects, and not in accordance with specification; had only been twenty minutes inspecting the premises, &c., &c. Mr. McCurdy, architect, proved that he had been chosen as arbitrator to adjust the matter, but differences arose between the parties at his house. Mr. Clinch, a licensed valuator, proved some questions of measurement and valuation. After a highly creditable speech by Mr. Palles, a young and rising barrister, on behalf of defendant, and by Dr. Heron for plaintiff, together with a lucid and comprehensive resumé by the learned judge, the jury, without retiring, found a verdict for the plaintiff for £45, with costs, of course.

THE OMNIBUS ACCIDENT AT PORTOBELLO.

Gunn v. Wilson.—This is the first of a series of actions, for some days past at hearing in the Court of Queen's Bench, before Judge Fitzgerald and a special jury, by representatives of the several deceased, who lost their lives by drowning by reason of the precipitation of defendant's omnibus into the lock of the canal at Portobello, on the 8th of April, 1860. The plaintiffs alleged inebriety and physical incapability of the driver, and the defendant pleads that the deceased met their deaths by inevitable accident. One case, most likely, decides all.

CONTINUOUS IRON SHEETS AS A ROOFING MATERIAL.

FOR very many roofing purposes corrugated iron has of late years been most extensively adopted, and is admittedly a very excellent material, though not without the disadvantage of possibility of leakage, by reason either of the contraction of the material itself causing the joints to open, or by careless workmanship in the laying, and the proper overlapping of the latter. It is palpable that the shorter the lengths in which the material is got out the greater the number of joints, and, consequently, the greater probability of leakage; but the difficulty has been obviated, if not wholly prevented, by Morewood's patent *continuous* roofing sheets, which, as their title signifies, are capable of being produced of any length almost required, thereby dispensing with the use of joints altogether. It is decidedly superior to canvas or felt, being much more impervious and durable, and is, moreover, an economical substitute for slate. Its extensive adaptation to roofing purposes on public and other buildings, both at home and abroad, such as picture galleries, concert halls, warehouses, &c., is the best evidence of its excellence, and for agricultural buildings it is especially invaluable. Sample rolls have been regularly exhibited for some time past at the spring shows of the Royal Dublin Society by the patentee's agent for Ireland, Mr. Askens, of Middle Abbey-street, and will (as we are informed) also at that for the present winter, commencing on to-morrow, the 16th inst. We direct the attention of our readers thereto.

THE CORPORATION NEW CATTLE MARKET.

IN our last issue we announced that tenders had been received for this much-wanted structure in lieu of the present exceedingly unsuitable and incommodious arrangements at Smithfield; and that at the time it was under consideration by the Council as to whether the amendment of Mr. Meade's tender therefor, at £17,200 odd, should be admissible or not. The objection having been overruled, and Mr. Meade subsequently declared contractor, we hasten to place before our readers a *fac simile* of the contract plan, and must remind them that this is not to be confounded with the North Wall project, for which a special Act of Parliament was obtained by other parties, although strenuously opposed by the Corporation, and which *may* or *may not* be matured. While we write, and while the North Wall gentlemen are *thinking* of their project, this is actually in *progress*—a fact highly creditable to the energy of the immediate promoters, amongst whom (as usual in all matters of civic improvement) Dr. Gray, T.C., figured most prominently. We doubt not that the contractor will, with his accustomed spirit, and especially under somewhat peculiar circumstances, push his works most vigorously forward, and within the exceedingly limited period of *three months* allowed him, enable us to declare the Corporation market *un fait accompli*, while other projects are yet only in embryo. To Mr. Parke Neville, C.E., the City Surveyor, who designed the arrangement (having previously visited the principal and most approved markets in the kingdom), every merit is due; and the works will be carried out under his immediate superintendence. The map itself sufficiently explains the arrangements of the localité of the market, which are highly approved of by the most eminent salesmasters and cattle dealers, &c.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AT the ordinary general meeting of this body, held on Monday, 1st inst. (W. Tite, Esq., M.P., president, in the chair), among other valuable donations a portrait of Sir William Chambers was presented by Mr. Cuthbert Brodrick, Fellow, and an autograph letter by Sir William Chambers, dated 1787, was also lent for the occasion by F. A. Hawker, Esq.

Mr. M. Digby Wyatt, in presenting the catalogue of the library of the East India Department, said, that if any members desired to use any of the books enumerated in the catalogue, it was his earnest wish to assist them. The library is in Cannon-row. Mr. E. Haycock, of Shrewsbury, was then elected by ballot a Fellow of the Institute, and Messrs. F. P. Hughes, James Tolby, Josiah Webber, and Rowland Plumbe, were elected associates.

Mr. Street then read a paper on "the Restoration of the Church of St. Michael, Penkvel, Cornwall; and on the Right Mode of Arranging Restored Churches for Modern Use." The architectural character of the church is very curious. The western tower retained an original altar, under an arch in the first floor, with piscina, &c.; and owing to the removal of plaster, and white-wash, which had been applied everywhere, many curious discoveries had been made. The chief of these were in the transept, each of which had founders' tombs, piscina, sedilia, road staircase, and niches with rich traceries. Much of this Mr. Street had been able to re-construct, by the aid of small fragments of stones, purposely mutilated, and which he had, with much labour, fitted together. He described the church as illustrating a class of churches in the same county of special character, and evidently the work of artists of the same school; and he described the particular characteristics of the class. He then entered at some length into the mode to be adopted in the re-arrangement of a restored church, and, taking all the parts in succession, stated shortly, what appeared to be the law of the Church of England, which, as it seemed to him, ought to be understood and recognised by all architects who undertook the restoration of churches. An interesting discussion followed.

The meeting was then adjourned until this date, when a paper will be read by Mr. C. Fowler, sen., Fellow, upon Hungerford Market; and also one by the Rev. Mackenzie Walcott, M.A., F.S.A., on "the Monastic, or Conventual Arrangements of Canterbury."

Mr. Wilkinson, of Oxford, is adding new rooms to the building belonging to the Union Society of that city, one of the late Mr. B. Woodward's best works. The additions consist of a writing-room and library, in keeping, architecturally, with older portions of the building.

ROYAL HIBERNIAN ACADEMY.*

THE FINE ARTS—LECTURE ON SCULPTURE.

THIS rapid sketch has brought down the history of the art of sculpture, in a general and cursory way, to modern times. Fain would I dwell still longer on the theme, but time will not allow, as I wish to address a few words to the students of this Academy before I conclude. Sir Joshua Reynolds says in one of his discourses to the students of the Royal Academy—"If you have great talents, industry will improve them; if you have moderate abilities, industry will supply their deficiency." But Hayden more truly says—"If you have great genius industry only can prove it; but if you have not, industry, though it may increase by practice the powers of your mind and hand, will certainly never supply the original deficiency of nature." This is advice to the man of genius to be industrious; but it is not at first sight very consoling to the man of moderate abilities, seeing, that no matter how industrious he is, the original deficiency of nature cannot be supplied. What then? Shall no man seek to be an artist unless he be a man of genius? Not so! In the first place, who shall declare in the earliest stage of instruction who is or who is not a genius? A man may be struggling and lumbering along heavily enough for some time before the Divine affluens seizes on him and blows the spark of genius into a triumphant flame. Therefore, whether you have genius, or whether you have not, be industrious! That is the commencement of all good; and then, even if in the course of time you find you have not the Divine spark, you will not have been wasting your time or your talents, for you will at least have been increasing the powers of your mind and hand. But let no young man seek to be an artist under the impression that it is an easy and lazy way of learning a profession, for, no matter how great the amount of your genius may be, you must work hard, long, and incessantly. Many a man who has made his way to fame and fortune regrets keenly not having availed himself sufficiently of the advantages to be obtained by close application when in the student state; for which of you, I would ask, will be likely if by chance some patron, struck perhaps by some premature display of your genius, should give you, or obtain for you, constant employment, would be likely to leave the remunerative path on which you had entered for the purpose of coming back here or elsewhere to finish your studies—to obtain that complete knowledge of form to be learned only by long study of the antique models around you, and constantly drawing from them and from the life?

And here I would wish to direct your attention to a study too much neglected in this country, I mean the study of anatomy, not simply by books, or hearing lectures, but in the medical schools and with the knife in your hands. It is impossible to overestimate the advantages to be derived by an artist, particularly a sculptor, from a sound and practical knowledge of anatomy, which can only be truly learned by dissection. A great authority upon all subjects connected with matters of art, the author of the sublime and beautiful, our immortal countryman, Burke, says, in a letter addressed to our not less illustrious and immortal countryman, Barry, "remember there is a great deal of mechanism in your art, in which, however, the distinctive part of the art consists, and without which the first ideas can only make a good critic, but not a painter. I confess I am not much desirous of your composing many pieces, for some time at least. Composition I do not value near so highly; but that exquisite masterly drawing, which is the glory of the great school where you are, has fallen to the lot of very few, perhaps to none in the present age, in its highest perfection. If I were to indulge a conjecture, I should attribute all that is called greatness of style and manner of drawing to this exact knowledge of the parts of the human body, of anatomy and perspective; for by knowing exactly and habitually, without the labour of particular thinking, what was to be done in every figure they designed, they attained a freedom and a spirit of outline, because they could be daring without being absurd; whereas ignorance, if it be cautious, is poor and timid; if bold only blindly presumptuous. This minute knowledge of anatomy, and practical as well as theoretical perspective, by which I mean to include foreshortening, is all the effect of labour and use in particular studies, and not in general compositions. Notwithstanding your repugnance to handling of carcases, you ought to make the knife go with the pencil, and study anatomy in real, and if you can frequent, dissections." "You must be an artist, and this you cannot be but by drawing with the last degree of noble correctness; leave off sketching. Whatever you do, finish it; let me entreat that you will overcome that unfortunate delicacy that attends you, and that you will go through a full course of anatomy, with the knife in your hand. You will never be able thoroughly to supply the omission of this by any other method."

Such, gentlemen, is the language of Burke, the finest writer on art that ever lived, and such the advice he gave to Barry, who, following it, became the finest historical painter of the age, pronounced by Canova to be the Michael Angelo of England. Better

advice could not be given by any man; I therefore repeat it, and beg of you to follow it. Do not, however, imagine that in urging you to correctly finish whatever you undertake I therefore advocate that elaborate surface and miniature-like finish that I have seen too often attempted; many a chalk-drawing and clay-model well begun and boldly handled have I seen irremediably spoiled by an attempt to get too high a finish, the drawing becoming muffy, and the model tame and spiritless. It is a great thing in art to know where to stop, and to be aware of the different degrees of finish necessary to produce the desired effect according to the position which your work is to occupy. This is a knowledge particularly necessary in sculpture, in which the effect of the best works may be destroyed by an injudicious position; for instance, the finish of a marble statue or group intended for the interior of a building where the light is to a great degree artificial, is quite different from what would be necessary for the open air where the light is brilliant and diffuse; too high a finish could not be put on a statue intended to be close to the eye of the spectator, while the same amount of finish on one placed at a great height would only have the effect of making it look stiff and tame in contrast to one of a more dashing execution—not that I advocate slovenliness of execution, no matter at what height you place your statue, but the effects of light and shade must be produced in a different manner.

A story is related of Phidias and Alcamenes, which will explain what I mean. They were both employed in the execution of a public work connected with one of the Athenian temples, and both of their works were to be placed in a high position. Phidias calculated the effect necessary for the distance, and regulated his execution accordingly. Alcamenes, less experienced, finished his work highly, so as to look well near. In the public exhibition, before they were elevated to their position, the work of Alcamenes was preferred. But Phidias, confident of the correctness of his views, only smiled at the admiration of the people, and when they touched it with their fingers, and cried out, how smooth! turned aside his head. But when the works were duly placed in the elevated position for which they were intended, the one of Phidias showed its proper proportions, the atmosphere softening its execution, while the work of Alcamenes, fitted only for the room, became totally lost and inefficient.

The study of light and shade is as necessary to the sculptor and architect as to the painter. But a knowledge of form is not only the basis of all knowledge in art, but also in manufactures, even down to the common pot or kettle. The man with a knowledge of form will make them of various and agreeable shapes, where the man destitute of this knowledge is confined for ever to the simple cylinder. It is a knowledge of this fact that makes the manufactures of France and other Continental nations so superior to ours; though a step in the right direction has been lately taken in these countries, by the establishment of schools of design; they do not go far enough—they rely too much upon geometry, and too little upon anatomy; the drawing of the human figure should be the corner stone and basis of their tuition, but, instead of that, it is almost prohibited by the department. I do not mean exactly to say that it is absolutely necessary that a young man should study anatomy to enable him to draw the leg of a table, but I do mean to say that the young man who has studied the human form well (if anatomically so much the better) will both design and draw a leg for a table infinitely better than the man who has not done so. But if this be deemed essential in the knowledge of drawing necessary for the manufacturer, how much more must it be in every department of the fine arts. So, my young friends, whether you are going to devote yourselves to portraiture, or landscape, or marine painting, to historical painting, architecture, or sculpture, let me impress on you the necessity of first acquiring a perfect knowledge of the human form, from the antique, from the living, and from the dead.

There is another point to which I would wish to direct your attention, the composition of drapery, by arrangement on the lay-figure. I remember having noticed, at the French Academy in Rome, a special class devoted to this purpose; each student, in his turn, was in the habit of posing drapery according to his fancy and taste, on the lay-figure, from which the others modelled or drew, and, at the end of the session, a medal was awarded to whoever was considered by the authorities to have composed the finest arrangement. I am not aware that this useful practice has ever been carried out elsewhere, but I would strongly advise its adoption in these schools. When you have acquired a facility of drawing, it is, of course, just as easy to copy a beautiful fold as an ugly one, but it is not as easy to invent one as the other, or to distinguish what is fit and becoming, unless by the constant arranging of draperies with your own hands, and exercising your own taste. I have known many distinguished artists to spend several consecutive days over their lay-figure, changing and altering, and twisting and turning the drapery on it, before they could please themselves with the effect.

If time permitted, I could say much more to you on the nature and manner of your studies, but, with the means of instruction which this institution affords you, and with the advice of the able

instructors and directors of your different studies, it would be useless for me further to occupy your time on the present occasion. It may not be out of place, nor uninteresting to some of those who hear me, to state that the instruction given to the students of this Academy is entirely gratuitous. The use of these valuable casts from the antique, the paintings, the drawings, and the library, are all alike placed at their service, without fee or remuneration of any kind whatsoever. A school for the study of the living model, draped and undraped, is also supported at a considerable expense to the Academy; and medals and rewards are given at the end of each session to those students who have the most distinguished themselves in their several departments. And when we reflect that the means by which all these things are accomplished is obtained from the amount of money taken at the doors of the annual exhibition and a small public grant of £300 a-year, I think it must be admitted that the Royal Hibernian Academy's not idle or useless in its generation, and that, taking into consideration the smallness of its means and the purposes to which they are applied, it may justly be considered in the very first rank of the public educational institutions of this city.

And now, gentlemen, I have only to thank you for the kind attention with which you have listened to me, and to beg of you, my young student friends, to remember, in the words of the illustrious Florentine, "That not on downy plumes, nor under shade of canopy reposing, fame is won, without which, whosoever consumeth his days leaveth such vestige of himself on earth as smoke in air, or foam upon the wave. Thou, therefore, rise, conquer thy weariness by the mind's effort, in every struggle found to vanquish, if she suffer not the weight of her corporeal frame to drag her down."

THE DUBLIN MECHANICS' INSTITUTE.

THE advantages offered by this Institute for improvement, and for acquiring, through competent teachers, instruction (at an almost nominal expense) in various useful branches of education, should be appreciated by our fellow-citizens, and largely availed of, especially by the industrial and operative classes. The province of the Institution—like all kindred establishments—is peculiar, and presents inducements to profitable study, by supplying varied and useful means for imparting, in a general form, the elements of arts and history, and progress of discovery in science. The library is furnished with works, numbering some thousands of volumes, by eminent authors, in every department of literature. The newsroom is supplied plentifully with the leading periodicals and scientific journals, magazines, &c. The evening classes are presided over by teachers of ability; and, in the lecture hall—which is an exceedingly commodious and handsome apartment—many eminent men occasionally deliver entertaining and instructive discourses. Much praise is due to the present Board of Management and officials for the recent successful career of the Institute and its prosperous condition, especially after the reverses through which, owing to protracted internal dissensions, it had passed. No better proof also need be adduced of the value of the system under which it is conducted than to state that, not only are the casual visitors to the reading-room and the members materially increasing in numbers, but also are the pupils who avail themselves of the advantages presented by the various evening classes.

With reference to the latter, we desire to offer some special remarks on that one which, more than the others, relates directly to our own profession, and has an important bearing on the several branches of the building trade. From our own experience, as well as from what we learn, we believe that superior draughtsmen in Ireland are becoming every day more and more scarce, or are, at least, not equal in point of number or of general merit to the requirements of the time. This is to a great extent owing to the fact that, both in public and private drawing-schools, more attention is bestowed on instruction in figure drawing and landscape painting than in geometrical drawing and the science of architectural construction. Many of our most eminent architects are themselves occasionally obliged to draw the minor details of their designs, which, in the ordinary course of practice, should be executed by assistants, and which need not be if those parties who profess to be qualified draughtsmen really were so, and had, previous to their undertaking situations in that capacity, passed through a course of educational probationship under a competent instructor.

The Directors of our Mechanics' Institute seek, with praiseworthy spirit, to lessen the difficulty; and recently, by public advertisement, announced their desire to treat with qualified applicants for the post of master of their drawing class. The immediate pecuniary inducement offered is, doubtless, small—far too small for any gentleman of even moderate professional practice to think of engaging in—but as all the classes are to a certain extent self-supporting, and the measure of support generally varies both with the qualifications and the earnestness of the teacher, it is quite possible that the appointment might to some be made a consideration nevertheless, as an auxiliary to other pursuits.

From amongst the many candidates, the Board selected Mr. O'Hara, C.E., of the Museum of Irish Industry, being, as we understand, fully satisfied previously as to that gentleman's attainments; and we now trust that as a somewhat new era has been inaugurated, many of our youths who propose to cultivate architecture, either as a pleasure or a pursuit, as well as our artisans connected with the constructive arts, to whom a knowledge of it would prove invaluable, will speedily embrace the opportunity so offered for improvement.

RURAL SKETCHES.

KILBRIDE, the beautiful demesne of Lieut.-Colonel Keogh, is situated within a short distance of Mr. Conolly's property, which has been recently noticed.

It is nearly square, and is bounded on three sides by the farms of the Colonel's comfortable and respectable tenantry; the river Slaney flows along the east side, on the opposite bank of which is Ballintemple, the delightfully-situated residence of the late Sir Richard Butler. There are about 200 Irish, or 824 statute acres, in Kilbride demesne. About the year '47 the late Mr. Keogh commenced the improvements on the demesne by removing an immense quantity of granite boulders which were in the land, and with which a great length of boundary wall was built. A splendid modern residence was also built of the stone raised from the land. The exterior of the house is of chiselled granite, of excellent workmanship, and, contrary to the general opinion regarding such material, the granite has become bleached to a beautiful colour.

A large extent of the demesne was a very wet, peaty soil. In the course of last summer Colonel Keogh commenced a system of drainage under the Board of Works, the execution of which has been entrusted to Mr. James Brennan, Ballyharmon, and we have every reason to believe that the work will be efficiently carried out. Notwithstanding the immense quantity of stones raised for the demesne wall and mansion, a great deal still remained in the land, and how they were to be disposed of was the subject of much thought; it was ultimately determined to use them in the drains; they were cloven for the sub-main and main drains, and were broken to a size of two inches square for the minor drains. The parallel system of drainage was adopted here, the minor drains being forty feet apart and four deep. The cost of executing this work was, for sinking and covering, 6d. per statute perch, and 5½d. for breaking the stones and putting them into the drains. The stones were blasted, cloven, and all large ones broken with a sledge, at a cost of 9d. per ton; they were laid in heaps along the drains, broken with hammers, hand-picked into boxes, and 10 to 15 inches deposited in the drains. The sub-mains were in all cases box drains, the walls being generally 12 inches high, built with cloven stones, and covered with same material, the width between walls being 8 inches. The cost of stone work in these drains was 1s. 6d. per statute perch; the walls of the main drains were in some cases 15 inches high, by 10 inches wide, at a cost of 2s. 6d. per perch for stone work; and of the principal main drain the walls were 18 inches asunder and 20 inches high, the bottom being made in the following manner:—at about every four feet a long cloven granite stone was laid across the drain, and extending under the side walls, the spaces between these lintils being paved with small stones; the object being to prevent the great current of water in this drain from wearing the bottom, and thus destroying the foundation of the stone walls. The stone work of these drains cost 4s. 6d. per perch.—*Agricultural Review*.

INSTITUTION OF CIVIL ENGINEERS.

A GENERAL meeting of this society was held on the 10th inst. in Trinity College; Samuel Downing, Esq., LL.D., Professor of Engineering, presided.

Mr. W. Anderson read a paper on "the Machinery employed in pumping reclaimed land at Wexford." Having briefly traced the origin and progress of the enterprise, he proceeded to describe the operations by which 2,200 acres of land are being reclaimed on the north side of the channel of Wexford Harbour, by an embankment nearly two miles in length. On the south side 1,996 acres had been reclaimed from the sea by an embankment nearly one and a-half mile in length. The lands were deeply ploughed and limed, and now yielded luxuriant crops, and produced a very fattening pasture. The pumping machinery at Drivagh was next described. The scoop wheel, which forced the water over a weir eleven feet high, at the rate of 170 feet per minute, was one of the largest and finest in the United Kingdom. Several new members were proposed and admitted.

ROYAL WESTERN YACHT CLUB.—The Royal Western Yacht Club of Ireland inaugurated its entrance into its new club-house, Westbourne-place, Queenstown, by a splendid dinner, given on the premises, on Tuesday evening.

IRISH WASTE AND NEGLECT OF IRISH RESOURCES.*

To impartial observers the Irish statistics of the past twenty years present features of a greatly varied, if not in some respects, of a totally dissimilar character. On the one hand I find an extraordinary, and, perhaps, unexampled decrease in the number of paupers and criminals, while, on the other, in an almost precisely equal ratio, is a decrease in the number of inhabitants. The value of labour has been largely increased, but the number of the labourers has been reduced from eight millions to five and three quarters. The land, live stock, and house and chattel property of the kingdom have all but doubled in value, from causes which, I cannot avoid observing, were external rather than internal. Railways have been extended over the length and breadth of the country; our communication with Great Britain has been greatly facilitated, if not perfected. The education of the people in schools, and through a cheapened newspaper press, has proceeded with a rate of progress previously unknown and unanticipated, and the improved circumstances of the population is now evidenced. Yet, further than in the enhanced value of their real and chattel property, in their continuously increasing deposits of ready money in the joint stock and savings' banks, and in the public funds, all this progress (and in a direction, too, which in other countries would be eminently favourable to the development of the higher forms of industrial enterprise) has, except in some parts of Ulster, produced little beyond improved cattle breeding, and a larger retail trade in imported goods. Our deep sea fisheries languish and decline. Outside of Ulster our factories remain stationary, and our mining enterprise produces but little more or little less than it did a quarter of a century ago. By a parliamentary paper I find that the number of hands employed in cotton, woollen, worsted, silk and flax spinning factories in the United Kingdom was, in 1838, 423,400; in 1856, 682,497; in 1859, 5,857 persons were employed in cotton and wool spinning factories in Ireland; in 1856, 4,025 only. Flax spinning, however, which employed but 9,017 persons in 1839, employed in 1856 28,753, of which 27,350 found employment in Ulster, and 1,403 only in the other three provinces. The export of British manufactures in 1850 was valued at £63,320,000; in 1859 at more than double, or £135,613,000. . . .

Next for mining. At Swansea—the market for Irish copper ore—during the four years ending '46, the average sales per annum of Irish ore was 18,000 tons; the four years ending in '52, 10,800 tons per annum; the four years ending in '60, 10,910 tons per annum. In 1860 the entire produce of our lead mines appears, by an official return, to have been 3,997 tons. For 1836 we have returns from only Glenmalur and Luganure. They are set down for an average annual yield, at that period, of 2,600 tons. Besides these, however, there were then three lead mines worked in the county Down, two in Clare, two in Wexford, one in Cork, and one in Tipperary, from which no returns were obtained, their united yield probably equalled, if it did not exceed that; and while on this important portion of our national resources, I cannot avoid reference to our all but neglected coal mines. According to the Ordnance Survey, coal is to be found in almost every county in Ireland, and the total area of our coal fields is estimated at 8,000 square miles. To the employment of her coal mines Great Britain owes chiefly her great manufacturing prosperity. To justify or excuse the neglect of our mines we are constantly reminded of the fact that, our coal being anthracite, it is totally unsuited for domestic use. Now, if nowhere else in the world, and by no other people, was the anthracite coal turned to account, we might be satisfied with the apology; but the fact is otherwise: anthracite coal, such as ours, is the very foundation of the manufacturing industry of Pennsylvania, New York, and of the New England States; and not only is that coal used in enormous quantities in the furnaces of their factories—it is by American ingenuity made to answer for house purposes also, and with what success let Sir Charles Lyell, one of the first of our geologists, speak. In his "Tour in America" Sir Charles, having all an Englishman's prejudices in favour of English coal, confesses that he was agreeably surprised on visiting the anthracite coal measures of Pottsville in Pennsylvania to find a flourishing manufacturing town, with the tall chimneys of a hundred furnaces burning night and day, and yet free from smoke.

Sir Charles, elsewhere, in his tour, remarks—"As managed by the Americans, I have no hesitation in preferring anthracite coal to the bituminous coal used in England, coupled as the use of the latter is with the penalty of living constantly in a dark atmosphere of smoke, which destroys our furniture, dress, and gardens, blackens our public buildings, and renders cleanliness very often impossible."

As fuel for iron smelting, this coal is particularly suitable, and deposited as it usually is in the neighbourhood of the iron stone, it seems placed by Nature herself at hand for man's use, in preparing the ore as dug from the bowels of the earth, for all the innumerable

purposes to which iron can be applied. In Kilkenny and Leitrim we have the anthracite and the iron stone, but *not* the factories; no hundred tall chimneys, as at Pottsville, to gladden the heart, and to serve as proofs of successful industry, leading to the creation of happy homes, where plenty crowns the board, and where, in a rising generation, are being educated, in all the virtues of manly self-reliance, so as become the future free citizens of a free and, although now for a time politically clouded, a yet glorious republic. . . .

A recent report (1859) of the English Registrar-General claims the great truth, "that sanitary improvement is a question of life and death to the population of every country." Under the British constitutional system of government the carrying into effect of sanitary improvements, and the enforcement of the regulations necessary for the protection of the public health, is committed to the local authorities elected by the people themselves. If, therefore, in Ireland labour is more enfeebled by disease, and sooner cut off by death, in consequence of bad sanitary arrangements, than it is in England and Scotland, it is not at Whitehall or Westminster we should seek for the culprits, but at home in our own town halls, and among our own citizens and villagers. [The author here dwelt forcibly on the necessity of a proper system of registration of births, deaths, and marriages, which has been frequently urged in the DUBLIN BUILDER.] In the absence of a registration system in Ireland, we have, as it were, to grope in the dark for some idea of our sanitary condition. The census death returns supply us with the only official statistics of our mortality; they are, however, greatly imperfect and defective. To the extent of no less than 25 per cent. as estimated by the commissioners themselves. In 1841 Mr. Commissioner Wilde, in his special report on the sanitary condition of Dublin, estimated, by the death returns of that and the previous year, the annual gross mortality at 1 in 32. The number of burials of persons dying within the municipal boundary registered at the civic and suburban cemeteries of Dublin during the ten years ending in 1851, was 80,112; this, which is under the actual number of deaths, gives an annual mortality, averaging 8,011 per annum, which, on a population of 252,890, the mean between that of '41 and '51, in Dublin, gives a death rate of 1 in 31.5. At the London rate the deaths should have been 6,168 per annum; the difference between that and 8,011, which is 1843, represents the annual waste of life in Dublin by inferior sanitary arrangements; and if we calculate that for every death in excess which occurred in Dublin, there were at least three stricken down by sickness; and as the excessive mortality and preceding sickness fell entirely on the poor and working classes, we will form some idea to what extent the arms of the Dublin tradesman and laborer is paralysed, by causes from which his London brother is free—and how much misery is generated and re-produced which might be averted or annihilated.

Dublin is an index to the condition of the cities, and towns, and villages of Leinster, Munster, and Connaught, whose excessive mortality over that of England and Scotland, and Ulster, may be estimated to range at between 20 and 50,000 per annum. Ulster, by a series of calculations much too lengthened to attempt to enter upon here, has been proved by the Census Commissioners to possess a remarkable sanitary superiority over other provinces. The census of last year shows that while she had, from '50 to '60, an emigration rate, within 1.1 per cent. of the mean rate of all Ireland—her decline in population was but 5 per cent., while that of all Ireland was 12 per cent.—strikingly suggestive of the reflection that it is not from any comparative natural inferiority in the Irish race, but to their own culpable ignorance, or neglect of the laws of nature, that the excessive mortality among the poorer and labouring classes in our city and in our poorer provinces is to be ascribed. . . .

Pending the publication of our last Census Report we cannot with precision estimate the progress made in education in Ireland since 1851, but we have statistics which may meanwhile serve as reliable guides to our position in 1860, the year reported on in England. Previously to the year 1853 the National Commissioners in their reports gave only the number of children on the rolls in their schools, but not the average daily attendance; since '53 they supply the latter as well as the former, assuming that in '51 a like proportion existed between the average attendance and the gross number on the rolls, as in '53 and '54 we have 254,900 as their average number in attendance, or very nearly 50 per cent. of the total number under instruction that year in Ireland. Since '51 causes have been in operation to raise the proportion of scholars in Ireland under the national system still higher—its Parliamentary grant has been more than doubled in amount, with the necessary consequence of increasing the efficiency and enlarging the educational territory of the system, and to the injury of the poorer class of private schools. Allowing, however, for the probable effects of the opposition given to the system in latter years, I will assume that the national system possesses now no larger proportion of the entire education of the country than what it did in 1851, and from the average attendance in national schools reported for 1860 as 262,829, I will estimate the total for Ireland that year as 518,000, or 37 per cent. of the then

* From a paper read on this subject by Mr. J. M'Evoy, at the Dublin Library Society, on the evening of the 8th inst.

school population of the country. The Census Report for '51 gives the increased rate of attendance at school between '41 and that year at 5 per cent., in allowing so much as 6 per cent. more, as gained in the 9 years ending in 1860, I believe I am claiming what the Census Report for 1861 will not establish; indeed our Registrar of marriages statistics seem to altogether forbid so hopeful a view of our educational progress.

Besides ordinary scholastic education there is the industrial and artistic teaching necessary to fit our workmen to compete with those of other countries, in those trades in which the public taste more especially demands elegance in design and skill in execution. To the nobleman or private gentleman familiar with the beauty of the public buildings in Paris and other continental cities, some things tolerated here must appear as hideous monstrosities, repulsive to the sight. Now, our tradesmen, such as stucco plasterers, house painters, stone masons and carpenters, should not be at all surprised when they find those whose duty it is to erect public buildings in this city or in this country, endeavouring to imitate, as closely as possible, the best and most approved styles of architecture and house decoration. In doing so they have but too often to seek the aid of the foreign artisan. In the new Kildare-street Club-house, in the new Museums erected in Trinity College, at the International Hotel, Bray, and, now as it appears by an advertisement from the Committee of the Plasterers' Society, in some works carried on by the Corporation, French and Belgian artisans have been imported to do the work.

The Plasterers' Committee seem to think that nothing but a prejudice in favour of the foreigner causes this importation. It may be well to set before them and their kindred tradesmen, some of whom are present this evening, some few facts which may lead them to other conclusions. The French and Belgian workman has not acquired by chance whatever excellence he possesses, neither has the climate or air of France or Belgium produced it; it is purely a matter of training or education. In the Primary or National Schools first, and secondly in the eighty high Schools of Art in the chief towns of France, open freely to all classes, ample provision is made for the people to learn drawing and the art of design, and to study science in its adaptations to industrial purposes. In 1836 a select Committee of the House of Commons drew attention to the great want in Great Britain and Ireland of similar institutions. Their recommendations were strictly and effectively supported by the Great Exhibition of 1851, in which the artistic superiority of continental workmen over the British was brought home to the senses of the entire people.

The Government and Legislature have since then been labouring, as in duty bound, to elevate the Englishman and Irishman to the level of the Frenchman and Belgian, and with some success, as the Great Exhibition of this year has shown. This work of improvement is chiefly carried on under the management of what is called the Science and Art Department of the Council on Education; and, whatever reason we may have for complaint elsewhere, in respect of exceptional legislation and administration, here the central authorities seem disposed to deal out even-handed justice to all parts of the three kingdoms. In every town in England, Ireland, or Scotland, where a local committee can be found to undertake the management of a school, and provide a schoolroom and school requisites, the Council furnishes a teacher, and pays him in proportion with the proficiency of his pupils, as ascertained at a public examination. At the last examination, four young tradesmen in the city of Cork obtained for their teacher, by their high standing, so much as £40, or £10 per annum, paid by the State for teaching drawing and science for each of the sons of Irish bricklayers and other tradesmen. I regret to have to notice that, in this city, but little use is made by the artisans of the School of Design in Kildare-street, and the number of towns in Ireland where those schools are established is exceedingly small, not more than seven or eight. I have been informed that recently an application was made to the local authorities of a town of 12,000 inhabitants to found a School of Art. To the application the Board of Commissioners did not deign to offer even the courtesy of a reply. It cannot be too earnestly impressed upon our working-classes that they must not hope to succeed in keeping out the foreigner in those days of free trade and free intercourse between nations, in any other way than by rivalling and excelling him in those points of excellence which the public taste now insists upon. The best kind of combination they can adopt is to combine to maintain Schools of Art. . . .

A striking and pertinent illustration of how much a nation's prosperity depends upon its people, and how little upon other circumstances, may be taken from the recent history of California. The rich mines, the fine harbours and bays, the genial climate, and the luxuriant soil, existed a quarter of a century ago equally as they do now; but then, in the hands of the Mexicans, and peopled by an inert race, all these were unknown or unvalued. In a description of the country, published by Dr. Forbes, in 1840, we find it was then occupied only along the sea-coast, by a few straggling settlements, while the interior, viewed as a *terra incognita*, was known

only in the tales of the half-breed Indians. A map, accompanying the work, is accurate, the author confesses, within the limits only of forty or fifty miles from San Francisco; the remainder, he says, is vague and uncertain. The population, then Indians and whites, did not exceed 20,000. Dr. Forbes, a sagacious observer, noticed even then the advent of the more vigorous race coming from the other side of the Rocky Mountains. He clearly foresaw that the backwoodsmen of the west would slowly, but surely, penetrate into California, and once the discovery of that country was made by them, its conquest, under some pretence or other, by the United States was sure to follow. I will not prolong this already sufficiently lengthened paper by going over in detail the subsequent events in the history of California, but will point to it now, one of the most prosperous states in the American Union, with a population of over half a million, with gold mines alone producing annually a sum nearly double that for which the entire territory was sold by the wretched Mexicans.

What these lessons teach is taught in the events daily coming under our observation in private life. We see the industrious, the energetic, the intellectually gifted, and the highly educated prosper, where dunces, and the lazy, and the ignorant fail.* We find a well-ordered household the abode of every earthly blessing, while neglect and disorder entails misery on all subject to its influence. Ireland, as a nation, is no exception, nor are we, as individuals, shut out from the operation of these providential laws, framed by a beneficent Creator for the government of his creatures, in every region of the globe, and in every country.

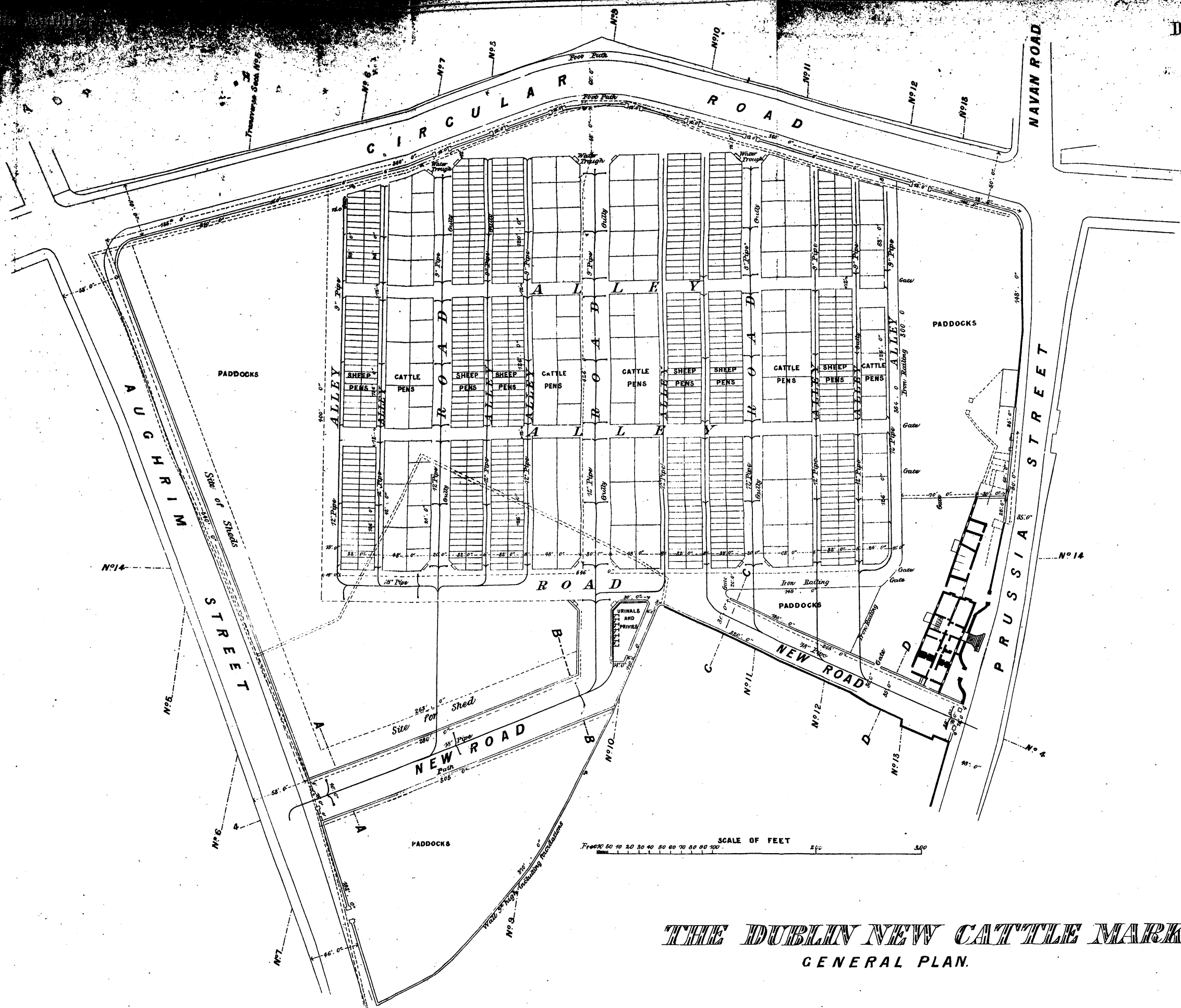
Let us look to government and the legislature for the removal, or rather the absolute abolition of the system of exceptional legislation and administration: as subjects of one empire let us have equal laws and equal rights: for the rest, let us cleanse, and educate, and rouse into action the spirit of enterprise, to employ the capital and labour of Ireland, develop her resources, and add to the store of wealth, knowledge, and happiness of Irishmen.

EXTENSION OF THE WESTLAND-ROW TERMINUS.

THE Dublin, Wicklow and Wexford Railway Company will be before Parliament next session, for leave to extend the present unsuitable terminal buildings at Westland-row, and accommodate them to the great traffic on their Kingstown line, which is the highway between the English and the Irish metropolis and provinces, for the express mail service, independent of the vast and continuous stream of passengers between station and station. We doubt not that the travelling public, to whom the very limited extent of the Dublin terminus has, especially of late years, proved most inconvenient, will receive this intelligence with gladness, and appreciate the enterprising spirit of the directors, who have at length resolved to secure "a consummation so devoutly to be wished for." We understand that the general plan of the extension, as designed by the company's eminent engineer, Mr. Lefanu, provides for the removal of the block of houses between the present terminus and Great Brunswick-street, and for including in the proposed buildings the field at rare thereof, as well as a portion—if not all—of the saw-mill premises now in possession of Mr. Meade. This arrangement corresponds so closely with that stated by us in a previous number,† as contemplated by the company—but the correctness of which was, about that time, at a public meeting of the shareholders, contradicted by the chairman;—that the circumstance must at least (without reopening the question) be regarded as a *coincidence*. We trust, however, that the new building will be an acquisition to the architecture of the city, in which, as regards locality, it will be placed to decidedly greater advantage than many of the other termini; and we doubt not that it will be so under the direction of the present eminent architect to the company. We shall not be wanting in our duty, when the proper time arrives, to give particulars every prominence in these pages.

THE NEW CHURCH IN RUTLAND-SQUARE.—Both the *Builder* and *Building News* of London refer to this structure (illustrated and described in the DUBLIN BUILDER for 15th ult.), and give brief particulars thereof. To those contained in the former journal we, however, find the following very unnecessary (to say the least) addendum, which can hardly be appreciated as complimentary to the numerous Catholic readers in Ireland of that otherwise able journal. The meaning of the suggestion is unmistakeable and unworthy, viz., "It (the site) was the property of Dr. Cullen, who held it for 'the Church,' but many Presbyterians vote for his candidate at the Dublin election."

* [As there is no general rule without an exception, we believe that there are very many exceptions to this; and that the rule is capable of being totally reversed in numerous instances, wherein fortune favours both sluggards and blockheads, and makes them millionaires; while men of intellect, of education, and enterprise, with difficulty keep their heads above water.—Ed.]
† Feb. 15th, 1861, page 436. ‡ May 1st, 1861, page 498.



THE DUBLIN NEW CATTLE MARKET
GENERAL PLAN.

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stances, may be taken from the recent history of California. The rich mines, the fine harbours and bays, the genial climate, and the luxuriant soil, existed a quarter of a century ago equally as they do now; but then, in the hands of the Mexicans, and peopled by an inert race, all these were unknown or unvalued. In a description of the country, published by Dr. Forbes, in 1840, we find it was then occupied only along the sea-coast, by a few straggling settlements, while the interior, viewed as a *terra incognita*, was known

only as the scene of a bloody and a cruel war. The result of the Dublin election."

* [As there is no general rule without an exception, we believe that there are very many exceptions to this; and that the rule is capable of being totally reversed in numerous instances, wherein fortune favours both sluggards and blockheads, and makes them millionaires; while men of intellect, of education, and enterprise, with difficulty keep their heads above water.—Ed.]
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THE HOWNES GILL VIADUCT.

THIS remarkable example of engineering skill, which bears a portion of the Stockton and Darlington railway, is described, as hereafter stated, in the course of an elaborate paper referring thereto, and read at a late meeting of the Institution of Civil Engineers in London, by Mr. W. Cudworth, C.E. :—

The extreme length of the viaduct was 730 ft., and its greatest height from the bottom of the invert to the level of the rails, 162 ft. It had twelve semicircular brick arches, each 50 ft. span, 14 ft. in length, and 2 ft. 6 in. in thickness. The inverted arches in the foundations, four in number, which were introduced, at the suggestion of Mr. Stephenson, so as to extend the bases of the three central piers until the weight scarcely exceeded 1 ton per superficial foot, had a versed sine of 14 ft., were 38 ft. in length, and 3 ft. in thickness. The extreme height of the five loftiest piers, measured from the springing of the invert to the springing of the arches, ranged from 114 ft. to 110 ft.; that of the six remaining piers diminished rapidly towards each end. Their length was 14 ft. at the top, and 38 ft. at the bottom, the latter dimension corresponding with that of the invert. The piers, to within 15 ft. of the invert, were stayed by buttresses transversely to the line of the viaduct. At this point they were only 17 ft. 6 in. in length, but below this level the buttresses merged into the piers, when they together had a rectangular section 38 ft. in length. The buttresses were 3 ft. thick at the top, and 5 ft. thick at the bottom; their projection from the piers being increased by offsets at intervals of 35 ft. The piers, although light in their proportions, were reduced by recesses, 7 ft. 3 in. wide, and averaging 3 ft. 9 in. deep, sunk in each side, so that the horizontal section of each pier with the buttresses was in the form of a double cross, the brickwork in the middle being only 2 ft. thick. These recesses were not continuous, but were divided into three compartments in height, and by their adoption, the amount of brickwork in each pier was reduced about 14 per cent. Between the spandril walls, two internal parallel walls of stone were introduced to sustain a platform of flagging, on which the waybeams and the ballast were carried. The waybeams, which were of Memel timber, were at first secured to the internal walls by bolts; but as this plan was found to be objectionable, the nuts from the holding down bolts were removed, and a thickness of 6 in. of coke ballast was interposed between the waybeams and the flagging. The parapet consisted of a substantial cast-iron railing. The fire-bricks were of excellent quality, weighing 9 lb. 11 oz. each, and cost the contractor at the viaduct £1 11s. 2d. per 1,000. The number used was 2,655,000. It was a gratifying fact that the work was completed without accident, and that not a single crack was to be found in the whole of the structure. The erection of the scaffolding, which was of very light character, was considerably facilitated by the hoisting tackle being made to traverse a stout wire rope stretched across the gill, and firmly fixed at each side. When the arches were about to be turned, the piers were stayed by two parallel wire ropes stretched from end to end of the viaduct. The first brick was laid in February, 1857, and the first train passed over the viaduct in July, 1858. The cost of the structure amounted to £15,756, the contract sum having been increased by the additional depth of the foundations, by the adoption of a heavier parapet, and by other contingencies. Regarding the viaduct as an unpierced solid, its contents would amount to 61,910 cubic yards, and its cost would be five shillings and one penny per cubic yard.

IMPROVEMENT OF KINGSTOWN HARBOUR.

THREE of Mitchell's new screw moorings have now been laid down in the harbour, and are regarded by competent judges as a decided improvement on the old span chain, sinker, or mooring-block, which are now generally superseded by the improvements which have lately been effected in moorings. The strength and durability of the screw moorings have been fully tested in various instances. The screw pile on mooring can be employed in almost every description of ground, for its peculiar form possesses the peculiarity that it can be employed in every description of ground where it is not one mass of rock. The form of the screw is such that it can easily penetrate through stones, and even thrust aside boulders of considerable size, and thus obtain a secure lodgment. The Lankey lighthouse, built on a coral reef in the north of Florida, is supported by a number of iron screw augur piles, inserted to the depth of twelve feet in the coral rock. The defects in ordinary systems of moorings induced Mr. Mitchell to adopt the screw pile as not only being in itself comparatively inexpensive, but, because it afforded greater facilities for entering the ground, and which, at the required depth, evidently afforded greater holding power than any other form of mooring hitherto known. It is also perfectly clear that if a cast iron screw of a given area be forced firmly into the earth to a certain depth, it will afford a firm point of attachment for a buoy chain in every direction, and will, in every respect, be more secure and less liable to be

dragged than the old sinker, which depends altogether for its strength on its specific gravity, and is thus almost useless when vertical strain is brought to bear on it. Many of these moorings were formerly laid down on the Thames at great expense, and they still continue at the Royal dockyards.

Screw moorings have now become so well known, that a more minute description of them would be unnecessary. I need only refer to the many structures which have been erected on Mr. Mitchell's screw piles, as a proof of their strength. The Maplin Land, Fleetwood, Belfast, Dundalk, Capman Land, Spitbank, in Cork Harbour, and Lankey, Florida lighthouses have been constructed on them. They can also be made serviceable as tide gauges, showing the depth of shoals or through channels. Courtown Pier is constructed on the screw piles, as are also Great Portland Breakwater, the Hill Creek Viaduct, South Devon Bridge. Kelm and Stockworth Bridges, and some suspension bridges in Jamaica have the principle applied to them. On the Great Northern, South Eastern, South Staffordshire, and other railways screw pilings have been, in several cases, used as supports to station-houses, sheds, &c. A bridge on the Bombay and Baroda Railway, in India, has been constructed on these screw piles. They are also largely used as bases for telegraph posts in that country, where there are from 2000 to 3000 piles driven for the support of the wires. In the late rebellion, however, the mutineers drew them up, and, as they were hollow, used them as cannon, and cut up the wires so as to form bullets.

Mr. A. Mitchell, the patentee of these screw moorings, is now in his 83rd year, and enjoys excellent health. At present he is blind, but has not suffered from that affliction from childhood. He invented the moorings since the loss of his sight. Mr. Mitchell is a native of Dublin, not of Belfast, as I was at first given to understand. His father was Inspector-General of Barracks in Ireland, a post which has not been filled up since his death.

SHILLING ART-UNION OF DUBLIN.

A MEETING of the committee was held in the Board-room of the Royal Dublin Society, on Wednesday, the 26th ult.,

JOSEPH R. KIRK, Esq., R.H.A., in the chair.

Minutes of last meeting read and confirmed.

The Secretary laid before the meeting a finished proof of the chromo lithograph of the Ruins of Clonmacnoise, after B. Colles Watkins, Esq., A.R.H.A., and stated that they were now ready for delivery to all those subscribers entitled to them as minor prizes, viz.—all white tickets ending with the number 82, and all blue tickets ending 83. He stated that it was much to be regretted that there had been such a delay in delivering those prizes, as it had been announced that they would be ready by the latter end of September; the delay was altogether the fault of the printers—Messrs. Forster and Co.

The Chairman said it was satisfactory to find, after such a delay, that the print was in every way so successful, and so highly creditable to the Messrs. Forster. In his opinion it was quite equal to those hitherto produced in London, and the committee might take some small share of credit for having encouraged in this city the publication of chromo lithographs from the works of resident artists. He would recommend that for next year some additional chromos of Clonmacnoise should be given as minor prizes. A more national one, or a better executed print, would not readily be had, especially as he presumed that there was not any delay in their delivery to be expected now. He was also glad to see that the Messrs. Stark Brothers had lately published an excellent chromo lithograph, after a little painting by Mr. Edwin Hayes, a member of the Royal Hibernian Academy. And he would suggest that it also might be desirable for their minor prizes of next year.

The Secretary stated that nearly all the minor prizes of "Moonrise" and the "Cross of Monasterboice" had been claimed and delivered.

It was ordered that the tickets for 1863 should be immediately printed and issued, and that the chromo lithograph of "Moonrise" should be given as a bonus to all subscribers of ten consecutive tickets.

The Chairman said this was very nearly equivalent to the amount of the ten tickets if the prints were purchased in the shops.

The meeting then adjourned.

GEOLOGICAL SOCIETY.

Mr. R. H. Scott, M.A., read a very interesting and instructive paper, in the Museum Buildings, T.C.D., on the 10th inst., on the Granite Rocks of Donegal, and the Minerals associated with them. This was the second notice on this subject, and was in every respect equal to his other productions. Mr. A. B. Wynne, F.G.S., then read an excellent paper on the Geology of parts of Sligo.

ON VOLUNTARY ARCHITECTURAL EXAMINATIONS.*

AMONG those institutions which have gradually developed themselves during the few past years, and which seem likely to exercise a great and lasting effect on the future, the establishment of professional examinations is certainly not the least. In all countries the pursuit of the liberal arts and sciences has had the most beneficial influence on civilized life; and anything that may tend to elevate the character of professional men in the eyes of the world, and to give them a better status among their fellows, must conduce to promote a higher and more intellectual tone to society at large. Having taken a deep interest in the question, and having been one of those who were entrusted by the Institute to take preliminary steps to endeavour to ensure to our own the benefits which, we believe, other professions have received, I venture to trouble you with a few remarks that have suggested themselves in the course of our enquiries; although, to treat of so important a subject as this in the manner it would deserve, would require a longer time and greater ability than I have to devote to it.

For many years, as you are all aware, an enquiry into the mental training and amount of information anyone might possess was confined to those about to enter the church or the medical profession. The important functions of both seemed obviously to demand that there should be a searching examination as to the competency of any candidates before undertaking their responsibilities; but it was not so with other professions. The lawyers, however, were the first to establish a change. Formerly, they who had managed to get "articled," as it was called, and had a hundred pounds to pay to the Stamp Office, were admitted to practise as attorneys or solicitors without enquiry. The consequence was, many men, endowed with some cunning and very little legal knowledge, crept into the profession; and, what was worse, the pretended practise of the law was frequently a mere cloak for money lending and all sorts of disreputable employments. Feeling this very strongly, the chief respectable solicitors united together in forming an institution to enquire into the fitness, both in point of a liberal as well as of legal education, of the several candidates before they were permitted to enter on the practice of the law. It is scarce twenty years since this institution came into active use, and since that time, I have been informed by old members of the profession, its character, as a body, has been raised to a degree beyond their most sanguine expectations. The cunning, vulgar, ignorant pettifoggery attorney, so frequent a character in the old novels and comedies, is almost extinct, and in their place we have, with very few exceptions, able and well educated gentlemen—men of whom society is proud, instead of ashamed.

The next movement to insure a proper education and competent ability among their members was made by the chemists. Here, as in our own body, any man might assume the title, and enter into practice at his mere will. The lawyers had always the semblance of an education, though it often consisted of the mere farce of "giving articles," but any man might write up "chemist," and compound the most complex medicines, or sell the strongest poisons, without question or challenge. So many evils arose out of this system, that the respectable chemists in a body applied to the Legislature for powers analogous to those already given to the lawyers. They, however, were met by a loud opposition, and it was asked what a chemist was, and where his functions began and those of the drug-dealer ended; and it was said it would be sadly interfering with the liberty of the subject if a man might not sell an ounce of salts, or a pennyworth of rhubarb, without an examination. It was also stated that, in country places in particular, the mere practice of scientific chemistry was but a very small part of a man's business; and just as many a little country builder calls himself "architect and surveyor," they demanded the right to assume at their own will the title of chemist. The respectable men replied this might be true, but others had no right, at any rate, to pass themselves off on the public as scientific chemists if they were not so, and at last (we have not time for all the details), the Legislature gave powers of incorporation, and of examining candidates as to their competency, and the sole right to use the title of "Pharmaceutical Chemist," as a distinctive mark of a proper scientific education. Something of this kind has been proposed with regard to the architects, and, with certain modifications, might, perhaps, be made to work well; but as the general wish seems at present to be to leave everything possible to voluntary action, and in no way to fetter the profession, I think it well to pass by all such questions for some future time. In fact, it seems to be wise to do nothing further till the results of our proposed experiments shall have full and fair opportunities to develop themselves.

The greatest step, however, to establish an enlarged system of education took place in consequence of the Crimean war, and the hardships and sufferings endured from the blunders and incompetencies which were charged against the Government officials. Al-

though these may have been exaggerated, and although too little allowance may have been made for the change from near forty years' peace to a sudden and tremendous war, still the attention of the public was forcibly called to the necessity of some change. Our public service was stigmatized as a circumlocution office; red tape became a popular by-word; and it was stated again and again that political influence, and that alone, was the qualification asked for in all our Government offices. It is beside our purpose to enquire as to the correctness of these charges; it is sufficient to say that the comprehensive scheme of an examination into the qualifications of every candidate for Government service, whether civil or otherwise, was immediately established. It has now existed seven years, and I am informed on the authority of the most competent judges, that the improvements in every branch have been greater than was ever anticipated. Since this the system has been extended in every direction, and almost to every intellectual pursuit.

Of course, there has been a very great opposition to these changes, the chief of which have been summed up in the third Report of the Commissioners of the Civil Service. One was the very old and hackneyed objection to all sort of advancement, that the course intended to be pursued "would make men above their business." Now, this is certainly an argument of some force as to charitable education, where the ultimate business of those taught will be to dig or to plough, and no more; but in Government employ, and especially where the men were stated to be much below the level of their everyday business, it was surely a poor argument to say, "do not raise them at all." In our own case, however, this notion would plainly be worthless, most of our best architects having been the best educated men of their day, and our profession certainly inferior to no art as it mingles at once the practical, the scientific, and the beautiful.

The arguments then took rather the form of opposition to examination as part of the system than to education in the abstract, and three principal objections were raised:—First, that examinations in general became too scholastic; that they involved, necessarily, a system of reading, a routine of class books, and, in common phrase, induced a system of "cramming." The second was, that the result of examination proved but little as to the real solid knowledge a candidate might possess, inasmuch as it might so happen the questions before him were such as he might chance to have picked up, while very ignorant of all the other branches of the subject. The third, and, as regarded the civil service, perhaps really the most valid, was that no examination would develop or prove that the candidate possessed the best and chiefest qualifications of all, namely, integrity, industry, activity, foresight, presence of mind, and a number of other qualities of similar character, of the highest importance in confidential positions.

The first objection had much weight in the case of the civil service, but I should hope in ours is must fall to the ground. I would ask anyone to look at the sketch form of voluntary examination, just circulated, and say whether it is not of such wide and comprehensive character, and so thoroughly practical in its essential details, that no amount of mere book work, no amount of "cram," would satisfy the examiners that the candidate had a right to a place in the class of proficiency as an architect.

To the second objection I hope there is quite as good an answer. Let enough questions be given, more in number than you expect or require any candidate to have time to answer, but, of course, let this be well understood, else he will feel deterred by the length and weight of the paper; give opportunity for selection, and let it be known the examiners do not wish the greatest possible quantity of work to be hurried through; a few questions thoroughly well answered will weigh more with the judicious than five times as much slovenly work. On this point I shall venture to enlarge, with your permission, a little further on.

The third point urged against the civil service—that examinations will prove nothing as to integrity or other moral qualities of candidates—does not, of course, apply in our case; but it might very well be put in another form, and men might say no examination will give genius, fancy, invention, or artistic talent. This in the abstract is granted; the "*mens divinator*" is certainly a gift; but constituted as we propose our examination to be, if it does not give men elegant faculties, it most clearly will afford a means of developing them and exhibiting them to the world. We do not propose to teach you to draw, to carve, to design, to devise, but we do propose to give you an opportunity of showing what you have done, and can do in all the more elegant branches of our art. It is hoped the various powers of all minds may be developed in all their gradations, whether purely artistic, whether strictly utilitarian, or whether of that happy mixture of both that is really the glory of our profession; and not only so, but that it will elicit the fruits of the wise watchfulness which you may have exercised during your novitiate; and, what is much the same, the care you have taken to store up in your minds all that may be valuable in your future career. We hope, whatever your speciality of talent may be, to offer you a wide, a fair field for its exertion and display.

* Paper read by Mr. Ashpitel at Architectural Association of London, on Friday evening, the 28th ult.

And here it may be convenient to consider in what way our proposed examination may differ from others. In the first place, it is not like a collegiate examination,—the great termination of a long series of studies, the harvest of seed sown some time back, and long and carefully cultivated. It is not an honoured end and rest from labours; neither is it the entrance into life, like that of the lawyer or medical man,—the opened gate through which he is to pass, and then to encounter his first struggle with the world. In the language of the schoolmen, it is neither a "*terminus ad quem*" nor a "*terminus a quo*." It is not an individual struggle for victory—the battle for the olive crown; nor such a struggle as those are for scholarships or high appointments, where there can be but one, or very few victors, and where the unsuccessful feel in the position of the vanquished. It may rather be likened to those military displays, where, after long training and active practice, the younger members march out confidently, hoping to prove they are soldiers of such proficiency as to be fit to act with veterans in the field, and trusting in time of need to be equal to do their duty ably to their country.

A very able writer in one of our professional journals has likewise shown the difference between the system of rewards now generally offered to students, such as the Soane medallion, or any other similar mark of distinction, and the present proposed system. These rewards have been of three sorts,—for the best essay, the best design, and the best measured drawing from an existing building. I will leave out of the question any chance of improper assistance when work is done at home, nor will I touch on help obtained from books, or hints from friends; but it must be obvious to all, as the writer says, that the best drawings may not be the production of the best draftsmen, but of him who has the most leisure to bestow on their production; and that the excellence of measured drawings depends, also, not only on leisure, but on the money there may be to pay for assistance, scaffolding, travelling expenses, and a host of other things which attach themselves to such undertakings.

It has been said, the reason why the English make such excellent medical men is, they begin practically; they "walk the hospitals," as it is called, on their first entrance into the profession; they act as dressers, in subordinate practical capacities, and receive the instruction of the lower, before they attend the lectures of the higher professors. Abroad, the scholastic education comes first, and many a man who has considerable theoretical medical knowledge, would be quite at a loss by the bed-side of the sick; while the man accustomed to practice from early life sees the state of things at a glance, and acts promptly and successfully. There is no doubt the active daily duties of the office are indispensable to the young architect, and it is in them, if he keeps his attention properly on his work, that he will find he has unconsciously gathered material to master the most important part of the examination we propose to offer. But it is equally true that these very circumstances operate against his chances of obtaining the distinction of medals, and other similar rewards, and it is very probable, as has been suggested by the writer above quoted, that this is the true reason why such rewards are so little sought, and of course often so little valued.

We all know how often it happens that rising men wish to enter the office of their seniors, with the hope to work their way up to independent practice. Of how little use is the production of a medal, or a portfolio containing designs for some unlikely or perhaps impossible marine hotel, or gigantic cathedral. Of how little value in the eyes of the man of business is the medal for the essay, which in general is simply a well-expressed account of something other men have executed. It may be valuable in its way, as every literary *tentamen* is; but it may have taken months to write, and of what value is it in active practice of the profession? Let us, however, ask, which would be the better testimonial, the exhibition of any such solitary mark of distinction, however respectable; or the production of a set of full, fair, and comprehensive papers on every branch of the art such as it is hoped will be laid before you, and the simple assurance that you have been fairly tried and found to be proficient, therein, and that wholly unassisted, and on the spur of the instant.

And now it may be asked, what should an examination be? It should be *full*, that is to say, such a one as should be amply sufficient to show the proper status of the candidate. Any examination which may be too easy degenerates into a grave farce. No one would care for such a distinction as any idle or weak-minded creature might attain. No: the examination should be such that in after life the successful candidate should be able to refer back to his paper of questions with pleasure, and exhibit them as such as in his days it was his pride to answer. But here comes the difficulty, the questions must not only be *full* but *fair*; they must be proper and pertinent. Nothing is easier than to set questions that scarce anyone can answer. Nothing is easier, with a little perverted ingenuity, than to set questions, of no great difficulty perhaps in themselves, but worded so as to mislead or puzzle a candidate. In competitive examinations, or those wherein a certain prize is to be conferred on the best man, and on one alone, is it not unusual for examiners, by way of shortening their work, to set what are called "catch questions;"

but nothing can be more unfair or improper in an examination like this which is proposed. It is a system of finding out the weak points, instead of developing the strong—of hunting out faults instead of exhibiting excellencies—and, as a matter of course, depressing the general body of the rising men, instead of encouraging it.

These considerations led us to another and very important point,—that no examinations should be *vis a voce*, but every answer should be put on paper. They also led to the adoption of what to some may appear a complex system of numbers and changes by the moderators, which is by no means so difficult as at first sight appears, but which ensures the judgment of all answers by their merits alone, as the examiners have no chance of knowing in any way the name of the person on whose papers they are about to pronounce an opinion. It is the matter alone, and not the individual, that is judged, and in this respect at least the utmost fairness is in all human probability ensured.

The system of *vis a voce* examination is abandoned now by almost all learned bodies. Many examiners, however, cling to it, as it shortens their labours so much; they consider they see in so little a time who are the competent men, and who are not; but they do not allow for that modest timidity many men can never divest themselves of, and they often attribute hesitation not to diffidence but to ignorance; while, on the other hand, men who possess but a smattering of knowledge, and have readiness and assurance, will blunder through when far better men will fail. There is also this complaint on the part of those who are not able to satisfy the examiners, and that is always a charge of unfair questions, of bullying, of misleading, of browbeating, of wishing to reject a candidate to the advantage of some favourite; in short, it is impossible to find any one who has been rejected under a *vis a voce* examination who does not attribute his being "plucked" to the bad feeling and unfair conduct of the examiners, rather than to his own deficiencies; and this not from a desire to pervert the truth, but simply from the pain and confusion which the candidate naturally gets into when on the point of what is called "breaking down." We hope we have reported such a course to the Institute that there can be no question that the proposed examinations shall be fair,—unquestionably fair—in all respects.

I would now venture to call your attention to the form of examination itself. The first remark which we have heard is, that it is too difficult—in University language, "too stiff a paper." This has been intentionally done, as the object is to show the standard we hope the rising men of the profession may come to in a few years' time, and not that at which we shall begin. And we think we have a good reason for this. Examinations are all contests for which the mind must be trained. It is much the same as with bodily contests. The fleetest foot that ever ran on the Olympic stadium, if out of practice, would be easily beaten by a slower runner; the strongest wrestler in the palaestra, if out of training, would easily be thrown by a weaker man in full practice. Knowledge, especially such as is of the most value to the architect, is of slow growth, and comes as much from observation as from reading. Now, it is clear the study and experience of three years must be infinitely greater than those of one year only. We thought it would be equal justice, therefore, to those who come up at even less than a year's notice, to set the standard lower than we think ought to be done three years hence; and we believe that those who pass now will in future be considered to be on an equality with those who have answered much more difficult questions at that period.

Another objection has been, that the questions are too numerous to be answered in the time allotted. This has been purposely done for the reasons above stated, that the chance of falling on those points to which alone the candidate has not happened to have given his attention, is so lessened that it can hardly be taken into account. Of course, the examiners will carefully consider how many questions ought fairly to be answered, and if, say one-half is the number, the marks should be so allotted that one-half should enable the candidate to get his full complement of marks.

The truth is, there is every reason to hope there will be the most kindly feeling between the examiners and the candidates. It is not the intention, as is necessary in some examinations of those who seek to fill responsible posts, to search out what a man does *not* know, and so by implication rebuke his deficiencies. It is the reverse; the examiner should endeavour to develop what you do know, which in the industrious and observing is generally more than they themselves believe. It should be like the greeting of one kind friend to another, who has just returned from travelling, and which generally is, after a first welcome, "Now tell me where you have been, and what you have seen, and what you have learned."

Questions have also been asked as to the class of reading to be recommended. This must be left very much to the tone of each candidate's own mind. It has been thought better, especially in so short a time, not to limit the range to certain books—a course which so often leads to a system of cramming. But there is one point I would venture to remark on: it is a common error for candidates,

when the examination draws near, to confine their attention to the more advanced branches of the various subjects, thereby probably leaving themselves deficient in the groundwork. Now, every examiner naturally looks to see whether a good foundation has been laid, and considers work based on sound elementary principles, of much more value than more showy and attractive matter, which may be got up by cramming, and is easily forgotten. I would therefore recommend, that shortly before the examination every candidate should go carefully through the elements of any branch of science, and see that they are properly ranged in his mind. This course will afford a confidence and facility in examination no other method will give.

There is no disguising one fact. The general tone of society has been much raised within less than half a century, and has become more refined and more intellectual. That which is now considered on all hands to be so indispensable to every gentleman, and generally designated "the education of a gentleman," would have been called "pedantic stuff." It was gentlemanly then to drink three bottles of strong wine after dinner, or to call out your best friend for a hasty word, and shoot him dead the next morning. In their softer moods, the gentlemen of George the Fourth's day devised patterns for waistcoats, cut collars for coats, and invented marvellous curls for the hair and whiskers; while every leisure hour of both ladies and gentlemen was devoted to cards, or worse forms of gambling. Things have changed very much since that time; and yet gentler manners, and more intellectual pursuits, have not brought with them luxury or effeminacy. Although far more temperate in living, and more simple and natural in dress, nothing of true British spirit has decayed. They who rode at Balacava, or who crushed out the horrible Indian mutiny, were as heroic men as any age could boast of; and under our own immediate notice is now as noble and patriotic a movement as ever was at Sparta or Athens. In a quiet and unostentatious way, men have joined together heart and hand for the defence of their own hearths and altars, and have spontaneously taken on themselves the fatigue and toils of military life in such a manner as to convince the world the spirit of the British nation is as great and as manly as ever.

But there is also no disguising the fact that, in spite of the exertions of the various architectural bodies, the professors of that science do not seem to be recognised in society as they ought to be. At any rate, the word architect is not the pass-word here that it is abroad. Why this may be, we will not stop to enquire; nor will we repine if it be so. One thing we are quite sure of, if the whole body assume and deserve a higher status in society they certainly will find themselves in an advanced position ere long.

This is one of the great advantages the system of examination offers. It not only must be valuable in a professional point of view, but it must be of the greatest use in showing to other professions, and to the world in general, that the architect has received the education of a gentleman. Let every rising man, then, who has a love for his art, and respect for his profession, assist in our endeavours to elevate both in the eyes of the public. Let every one who has leisure become a candidate. It will be more honourable to come up and fail, than shrink from the trial. In fact, it can hardly be called a failure. A standard is offered by which you may judge your powers. Without some trial, or some means of comparison, who is to judge their own stature? If at present you fall short of such height, it is no more blame to you than if you are but five feet ten instead of six feet, but there is this difference, although after a certain time the bodily stature will not increase, by proper cultivation that of the mind always will do so, and it must be very hard if he who falls short of the standard, after having had a few months' notice, will not reach it after the experience of another full twelve months has been added to it. And you are more likely to attain to this standard on trying once and failing, than even by waiting a year and then going up, without experience of examinations and what they can show you of your own powers, and the deficiencies of your education.

And now we should be ungrateful to the members of the Architectural Association if we did not acknowledge their support in this attempt. On them will fall a great share of the labour,—on them will devolve the task of shewing, as a body, that rising architects are men who do not shrink from that mental toil, that intellectual training and tuition, that all other professions undergo. They have given (perhaps as it ought to have been) a cautious support, but still it has been most genuine and unselfish. The fruit of all our labours, if fruit there be, must be expected to show itself slowly; but it is my earnest hope that I may be spared to see it, and on some future occasions, within these walls to talk over the old tales, to narrate our former labours, and to congratulate the members on the success of the united efforts of the Institute and of the Architectural Association.

The North Strand Church, which has been for some time past undergoing repairs, was on Sunday re-opened.

LURGAN MODEL SCHOOLS.

THE new Model Schools, Brownlow Terrace, now completed, having been delivered up by the contractor to the Commissioners of National Education, a short notice of them will not be out of place, and cannot fail to interest our (*Lurgan Gazette*) readers.

The style of architecture adopted is the Italian; the basement is of uncoursed ashlar up to window-stool course; the shaft wall is built partly of red perforated brick in pannels, and the pilasters and corbel course (which latter crowns the window arches) with Coal-island fire brick of a light shade of colour, the whole being surmounted with a handsome and massive cut stone cornice. The schools are composed of a centre building, and east and west wings which project about 38 feet in front of the former; attached to the west wing is a very handsome tower, about 14 feet square, and 53 feet high, divided into four stages, the third of which is prepared to receive a four-dial clock; the fourth being an observatory, in which we understand it is intended to erect, permanently, a large and powerful telescope. This tower is of the same description of materials as the rest of the building, but more richly ornamented with cut stone dressings; each key-stone of the clock-frames represents a head of Old Father Time as if looking down with paternal care on the young folk below. The three upper stories of the tower stand on four vermiculated stone arches, which have a massive appearance, each key-stone presenting a bust of Britannia with visor and helmet. The interior of the building is arranged into three distinct school-rooms; that for the boys being 54 feet long by 30 feet wide, and 21 feet 6 high to the wall plate; in connection with this room is the lecture-room, 24 feet 6 by 30 feet, in which is fitted up an spacious gallery. The lecture room and boys' school-room are so constructed that they can be thrown into one grand hall, when required for general examinations, by removing a pannelled framing from an arched cap, which appears most mechanically constructed; off the lecture-room is the apparatus apartment, 20 feet by 12, to be fitted up with large glass cases. Next to the lecture-room is the girls' school-room, 39 feet by 30 x 21 feet 6 high, it will also be furnished with glass cases, &c.; off this room is a class-room fitted up with a gallery capable of seating 60 girls; from this we pass to the infant school-room, 29 feet by 24, and same height as the others; this room, as also the others, are so arranged as to be lighted from both sides, which impart to them a very pleasing and cheerful appearance; off this also is a class-room, with gallery, &c. Attached to each school-room is a cap or cloak room, provided with racks, &c.; in these rooms there is also a water supply, with wash-hand stand and basin. The mechanical construction of the framing of the roof is a remarkable feature in the interior of the building; it has the appearance of great stability, although light and ornamental. The ventilation is (stated by our contemporary) perfect. The mode adopted gives free egress to the foetid atmosphere, while it prevents the cold air from blowing down on the heads of the children; the fresh air is admitted through brass sliding ventilators on the floor level, and through the top part of the windows when the weather permits. It may with truth be said that our public schools are palaces as compared with those in which our fathers were educated, when the lap was the desk, and his form the soft side of a whin stone, or perhaps an old rafter from the roof of some dismantled cabin which had fallen before the fury of the previous winter's gales. To the rear of the schools are extensive play grounds, in which are drinking fountains and airing sheds, in which the children can take exercise in wet or stormy weather. Off the sheds in each yard the latrines are built with separate stalls, which will be flushed daily with 300 gallons of water. There are also attached to the school most comfortable quarters which are intended for the caretaker, comprising two bedrooms in the attic story of the west wing, with a sitting-room, pantry, and kitchen in the basement, the latter being fitted up with kitchen range and all the accommodations of a first-class building.

On the whole we feel bound in fairness to say, that the schools under notice, so far as the building is concerned, are truly Model Schools, and reflect much credit on the architect, J. H. Owen, Esq., architect to the Board of Public Works; and on the contractor, Mr. P. Kerr, for the very excellent manner in which he has erected and completed the building, on which he principally employed local tradesmen. The painting was executed by Mr. James Robinson, Lurgan, and elicited a very warm expression of approval from the architect.

The entire buildings have been completed in the short space of fifteen months under the superintendence of Mr. P. Lynch, clerk of the works.

ROYAL DUBLIN SOCIETY.

THE usual scientific meeting was held on Saturday evening last, Lord Talbot de Malahide, V.P., in the chair. The following paper was read by Professor Gamgee, New Veterinary College, Edinburgh:—On the Prevalence and Prevention of Diseases of the Lower Animals in Ireland. (This meeting was substituted for that intended to be held on this evening.)

COMPETITIONS.

The Committee of the Mariners' Church, at Kingstown, offer a premium of £21 for the best design for improving the front of the church.

The Board of Superintendence of the County Limerick Gaol are desirous of obtaining a ground plan and estimate for certain alterations and additions to improve the accommodation. For the best plan they will pay £50, the plan to become their property; but the Board do not pledge themselves to employ the author to superintend the execution. Time limited for receipt of designs to the 17th January, 1863.

The Liverpool Exchange Company have determined to award a sum of *one thousand pounds* for the best design, and £250 each for the two next best designs for rebuilding and enlarging the Exchange in that town. Plans must be in on or before the 31st of March next.

IRISH ENGINEERING PROJECTS.

The following plans have been deposited at the Private Bill Office up to November 29th, the last day allowed by the standing orders of both houses for the coming session:—

RAILWAYS—Cookstown and Pomeroy; Dublin Metropolitan; Dublin, Wicklow, and Wexford; Dundalk, Carlingford, and Greenore; Irish North Western, Letterkenny, Londonderry and Lough Swilly (extension); Newry and Greenore; Sligo and Ballaghaderreen; South Mayo; Waterford and Passage; Wexford and Enniscorthy.

MISCELLANEOUS—Bann Navigation Improvement; Dublin Corporation Waterworks; Dublin Improvement; Dublin New Bridge; Dungarvan Harbour Embankment and Reclamation; Dungarvan Harbour Market, &c.; Ennis Docks, Quays, and River Fergus Navigation Improvement; Galway Waterworks; Lough Neagh Land Drainage Company; Tramore Embankment.

THE NEW IMPROVEMENT BILL.

LIKE all modern reformed projects, this under consideration is destined to prove a *quæstio vexata*. That some measure is urgently required for the better construction of our metropolitan buildings of all classes, for their symmetrical disposition with a view to architectural appearance, for the abolition of under-ground dwellings, for improved cleansing and ventilation, and general sanitary observances, everybody admits; for, as we have often said before, Dublin, of all other cities in the kingdom, is about the most defective in these regards; yet, a project "conferring new powers on the Municipal Council" is by the Council itself scouted as soon as it sees the light for its comprehensive framing and its stringency; and its paternity is shrouded in mystery, although the law officer's name is attached to the foot thereof. The following condensed report of a recent discussion thereon in the chamber will explain how the matter stands so far:—

Alderman Reynolds said—It interfered with buildings, the material to be used, the size of the rooms, and the appointment of an inspector, who might enter any man's dwelling, and dictate not only as to internal, but also the external part of it. It prescribed that every habitable room, cellar, or under-ground dwelling hereafter constructed should be at least seven feet in height from the cellar to the ceiling, and if occupied the owner shall be liable to a fine of 20s. a-day. Of this clause he highly approved, being a sanitary one much required for the safety of the lives and health of the poor. His reason for referring to it was, that he had received a long letter from Mr. Macarthy, the Secretary of the Tailors' Society, who complained that those who made up tailors' clothes had recently adopted a plan of banishing the working men from well-ventilated rooms to cellars under ground, that were ill-ventilated, and where gas was burning from morning to night. The secretary of the society in question stated that both men and women were attacked with pulmonary disease, in consequence of the niggardliness of some employers who closed them under ground, where they never saw the light of day. In the Dublin Improvement Act of 1849 there was a clause inserted that no cellar should be inhabited, unless the ceiling was a certain height from the ground, in consequence of which many of them had been closed up, and considerable improvement had been made in the under-ground dwellings of the poor. Referring to the bill in question, he asked who had put that encyclopædia in motion?

Mr. French (a retired builder) thought that citizens could never comply with the clauses. When he first saw it, it was stated to be an insurance bill, because, when building a house, the owner should arch under the hearthstone. If the joists were not of a certain depth, they could not make an arch; in fact, it would put a stop to the building trade in Dublin. Another thing was, that they were obliged to admit an inspector, to see that the house was built in a certain way.

Alderman Hudson—If he was to judge of it from public opinion

out of the house, there would be but one opinion with reference to it, and that was, that the manner in which it had been prepared and brought there that day was disapproved of by all parties.

Dr. Gray understood from Mr. Smyth that there was an order given by the committee to proceed with an Improvement Bill, but, for his own part, he never read the clauses, and did not know what their contents were.

Mr. Byrne said there were many clauses in this bill which amended some of the clauses contained in the Dublin Improvement Bill, but it was his opinion that the majority of the clauses were wholly objectionable. They created a whole lot of new appointments, and levied fees, not only on the builder of a new house, but on every man who did up the front of his house.

Alderman Hudson thought a resolution which he had drawn up might meet the view of all parties. It was to the effect that while we do not admit the authority of any party to prepare the bill that it be referred to a committee of the whole house to report thereon, and ascertain by what authority it was prepared and printed.

Alderman Bonsall having expressed his willingness to move the resolution, and Alderman Hudson having seconded it, it was put from the chair and passed unanimously.

It was then agreed that the committee should meet to consider the several clauses of the draft bill on Friday, and report the result to the Council on the following Monday.

A NEW BRIDGE OVER THE LIFFEY.

THE project—for some time in abeyance—of erecting a new bridge across the Liffey at Eden-quay, opposite Beresford-place, is revived, and Parliament will be applied to next session. This would connect the leading thoroughfares of Talbot-street and Gardiner-street, on the north side; and Great Brunswick-street, Westland-row, &c., on the south, with much greater facility than at present; and ensure a communication between the Dublin and Belfast, and Dublin and Kingstown (Holyhead mail route) termini respectively, within a period of five minutes, now fifteen, at least, via Carlisle-bridge. May we hope that these bridge projects may result in something more than mere talk, which, so far, is the extent of their progress.

Notes of New Works.

Mr. E. W. Thornhill, of this city (the superintending artist for Messrs. Hardman and Co., of the carving of the new church of SS. Peter and Paul), has executed in Portland stone a statue of the late Bishop Hooper for the church of St. Mary de Lode, Gloucester. It is highly spoken of, and was a work gained in competition with English sculptors.

There are at this moment several Protestant churches in course of construction throughout France, and particularly in Brittany. There is one at Brest (which is nearly finished), another at Lorient, and another at Tremeur, in the diocese of St. Brieuc.

Varied Items.

The new line of railway (Midland Great Western) from Longford to Sligo, has been opened. A dinner was given by the mayor and inhabitants of the latter town to the chairmen and directors, engineers, and officials of the company. Mr. G. W. Hemans was the engineer-in-chief. Messrs. Smith and Knight the general contractors, and Mr. Michael Crowe the builder of the stations, &c.

Several parties are desirous of urging the formation of "a grand parade" in continuation of Dame-street to the quays, thereby removing the obstruction of Cork-hill, and ensuring a spacious, direct approach, in lieu of the narrow one of Castle-street. To Mr. John Louch, architect, is due the origination of the design; but we regret to see no tangible steps being taken to ensure its development.

The first of the voluntary architectural examinations will be held at the rooms of the Royal Institute of British Architects, in Conduit-street, on the 26th prox. Candidates must deliver their applications and recommendations on or before the 27th inst. Much interest will, doubtless, be attached to these proceedings, as the inauguration of a new institution. It is intended to hold these examinations annually, and that they shall be open to all British subjects. We wonder much shall any of our Irish architects or architect pupils avail themselves of the opportunity so offered for gaining a praiseworthy distinction.

The Architectural Union Company declared a dividend of about 4 per cent. at their annual meeting on the 3rd instant.

The directors of the Crystal Palace have resolved to recommend a dividend on the paid-up ordinary stock of 8 per cent. for the last year. This is the largest dividend ever paid on this stock, and amounts to about 8 per cent. on its present price in the market.

Miscellaneous.

THE CONG. BALLINROBE, AND CLARE LINE.—In accordance with the standing orders of the House of Commons, the complete plans, sections, and reference-books of the above line, lodged in the Clerk of the Peace's Office, and the several public offices in the district through which it is proposed to construct the line. The importance of this line as a feeder to the Great Northern line cannot be overrated, and its adoption to the furtherance of the prospects of the Transatlantic Packet Station at Galway will be of the greatest consequence to that project.—*Mayo Constitution*.

GLASS BRICKS.—Light might be increased in darkly situate rooms and cellars, and all under-ground places by the use of glass bricks, either in a solid state or having their cores or central portion hollow; but having a thick crust or sides around such cores. The adoption of these in buildings would, it is conceived, prove a very great improvement, and increase the capability of house illumination. A number of these being built in a portion of an ordinary (clay) brick wall would throw light into many a dark corner, or place, at a trifling cost compared to that of inserting a sash frame or window. These could, of course, be pierced with holes and otherwise made subservient to a ventilative purpose. Might not also glass apertures or either forms of ornamentation be successfully employed in the outer and top embellishment of houses?

A NEW THEORY.—Professor Baché, connected with the United States Coast Survey, in a recent article on the physiology of sea-sickness, advances the idea that this torment of ocean travellers is a disease of the brain, and not of the stomach. His view is, that it is owing to the fact that the mind is not able to understand the varying motions of the vessel as rapidly as the senses feel them, thus causing a conflict of impressions, and a consequent affection of the brain, which in turn deranges the nervous system, and produces nausea. As soon as the mind can conceive the idea of each motion as soon as it is felt sea-sickness ceases. The deck is consequently the best place for one suffering, as there the sight can be best educated to the movement of the vessel.

GLUE FOR READY USE.—To any quantity of glue use common whisky, gin, or other spirit, instead of water. Put both together in a bottle, cork it tight, and set it for three or four days, when it will be fit for use without the application of heat. Glue thus prepared will keep for years, and is at all times fit for use, except in very cold weather, when it should be set in warm water before using. To obviate the difficulty of the stopper getting tight by the drying in the mouth of the vessel, use a tin vessel with the cover fitting tight on the outside to prevent the escape of the spirit by evaporation. A strong solution of isinglass made in the same manner is an excellent cement for leather.

THE STATE OF THE STREETS OF DUBLIN.—Never, we (*Irish Times*) believe, in the memory of the oldest inhabitant, were the streets of our metropolis in the deplorable condition that they are at present. The cleansing and scavenging of the city has been positively abandoned, and even the leading thoroughfares of Dublin have been allowed to fall into a state of the most utter neglect. That the paid officers of the Corporation have grossly neglected their duties is but too plainly evident, and so strong is now the feeling on the subject, that nothing short of a searching investigation will satisfy either the citizens or the public. In connexion with the subject we may observe that Captain Knox has given notice that at the next meeting of the Corporation he "will call the attention of the Council to the present condition of the streets and thoroughfares of this city," and will move "That Committee Number 1 be instructed to inquire into the manner in which the paid officers in these departments of the Corporation discharge their duties, and to report the result to this Council."

PROPOSED WATERWORKS FOR GALWAY.—Some time ago we announced that our excellent city engineer, S. U. Roberts, Esq., had a project in contemplation to furnish the inhabitants of Galway with a good supply of pipe water. We are now delighted to see by an advertisement in our columns, that there is a fair prospect that this great boon will be conferred upon our town. We understand that the plan proposed is to supply the town with pure water taken from the river Corrib, above Terryland, filtered and raised to a service reservoir, on Prospect-hill, from whence it will be distributed under high pressure, and in constant service. It will reach to the top story of almost every house in Galway, and will be a powerful agent acting under such pressure in case of fire. It is proposed to erect a number of public fountains, so that the poor will have an abundant supply of pure and wholesome water, and provision will be made for flushing sewers and other sanitary purposes.—*Galway Vindicator*.

IMITATION OF THE HUMAN VOICE.—We hear from Paris of the exhibition, on the Boulevard Magenta, of the figure of a woman so constructed as to sing various songs. A tube of india-rubber represents the larynx: the voice has a compass of two octaves. The inventor is Mr. Faber, formerly professor of mathematics in Germany.

REMINISCENCES OF THE EXHIBITION.—"The whole of the grates, &c., manufactured and exhibited by Messrs. Stuart & Smith of Sheffield, at the International Exhibition, have been purchased by Messrs. Hodges & Sons, of Dublin. It is a most beautiful collection, and supplies the strongest evidence of British progress in productions of wrought and cast iron; each of the objects is an example of the purest taste and the best manufacture. The series is very varied in several styles, for drawing-rooms, dining-rooms, halls, &c. It is known that the most competent artists are employed at this renowned establishment, which has maintained its justly earned fame during a long series of years. It is especially gratifying to know that in Dublin there is a firm so enterprising as to make this extensive and costly purchase. Messrs. Hodges are the largest iron-mongers of the Irish capital. During a recent visit to the city we inspected their establishment, and found ample proofs of the intelligence by which it is directed in all its many and comprehensive departments. They are advancing the art-love and the taste of Dublin, and are, therefore, of its true patriots. We rejoice to record this among other evidences that Dublin is maintaining a position side by side with that of London."—*Art Journal*.

We (*Morning Star*) cannot pass from this court without noticing the "Improved Kitchener" exhibited by Messrs. Flavel and Co., of Leamington, not that we intend to do justice to the fine workmanship, compact design, and complete arrangements of this elegant apparatus, for to do it full justice would require more space than we can afford to all the apparatus of its kind. The large numbers that have been sold, amounting to thousands, speak more strongly in its favour than any glowing description. It is much to be regretted that this range does not occupy a place more in keeping with its real worth. Messrs. Hodges & Sons are the agents.

MODEL DWELLINGS IN PARIS.—The government has determined to accomplish a reform in the dwellings of the operative classes in Paris, and is about to commence by the construction of a *cité modèle* on the Boulevard Mazas for unmarried workmen. The situation is well chosen, being in the centre of the manufacturing quarter of Paris. The proposed building is to be five storeys high, and each floor is to be divided into small rooms completely separated, and to be approached by a spacious staircase. The ground floor is to be appropriated to a reception-room or common hall, open to all the lodgers, to a restaurant or dining-room, an office for the director, and an apartment for the house porter. The plan has been already prepared by the government architect, and it shows that every room is to be well lighted, well ventilated in summer, and heated in winter. The common hall is likewise to be well heated, which will be a great advantage to the workmen, who can thus pass their evenings there in place of spending their time and money in a wine-shop. The first stone of this building, which will confer so many advantages on the workmen who have assisted in the decoration of Paris, will shortly be laid.—*Paris Letter*.

THE CARLISLE PIER AT KINGSTOWN.—Some months ago we stated that it was in contemplation to run a pipe along this pier to carry fresh water to the mail steamers. This decided improvement originated with the late Barry Gibbons, and it is to be hoped that the harbour commissioners will now carry out the intention. Viewing it in another light, the laying down of these pipes would be a vast saving to the City of Dublin Steampacket Company.

EXCLUSION OF DAMP FROM BRICKWORK.—The following methods for obviating this evil have been described at the Royal Institute of Architects. Three quarters of a pound of mottled soap are to be dissolved in one gallon of boiling water, and the hot solution spread steadily, with a flat brush, over the outer surface of the brickwork, taking care that it does not lather; this is to be allowed to dry for twenty-four hours, when a solution formed of a quarter of a pound of alum dissolved in two gallons of water is to be applied in a similar manner, over the coating of soap. The operation should be performed in dry, settled weather. The soap and alum naturally decompose each other, and form and insoluble varnish which the rain is unable to penetrate; and this cause of dampness is said to be effectually removed. The other method consists of sulphurised oil as a varnish or paint, and is said to improve the colour of brick or stone, as well as preserve them. It is prepared by subjecting eight parts of linseed oil and one part of sulphur to a temperature of 278 degs. in an iron vessel. It is said to keep out both air and moisture, and to prevent deposits of soot and dirt, when applied with a brush to the surface of a building, or stone, or even of wood-work.

Pare v. Daft.—In this matter the petitioner, Mr. Wm. Pare, having sold the premises called the Seville Iron Works to the Rolling Stock Company of Ireland, applied through counsel to Master Litton to allow petitioner provisional credit for the sum of £10,000, the amount of the purchase money heretofore agreed to be paid by him at the sale held under the Master's decretal order, in order that the necessary conveyance might now be executed to the Rolling Stock Company. Master Litton granted an order in the terms of the notice.

EMPLOYMENT OF IRISH WORKMEN ON IRISH WORK.—The operative stucco plasterers, at a meeting of their trade recently held, have adopted a series of resolutions, which are very important indeed. They constitute a plea to the Corporation of Dublin to give its assistance and influence to further the employment of native and metropolitan artisans of their basking. Those men complain that, whilst large sums are expended in building in and around the city, they do not get that share of employment in their own business which they ought to get. They do not want the Corporation or any other body to furnish work for them. They do not want it to improve ceilings, or cornices, or fronts, for their occupation thereupon. They are satisfied that, amid the improvements making every day—amid the structures growing up around us at present, or those planned for the future—there is enough, and to spare, of work for their hands. But they assert that the local resident tradesmen of their body are, too often overlooked for those who are not resident, and who are no more than birds of passage.—*Morning News*.

DISCOVERY OF A CURIOUS OLD WATCH.—There was lately found in an old cabinet in Calder House, Mid-Calder, the seat of the Right Hon. Lord Torphichen, a very curious and beautifully-constructed watch, evidently of great age. The maker's name, "Samuel Aspinwall," is inscribed inside, but no date. The outer case is of steel open work, studded with silver; the inner case is of open silver work, displaying the eagle, the rose, and the lily, &c., &c. The dial is of silver, and has a beautifully-executed engraving, supposed to represent the Accusation of Susannah by the Elders. The watch is furnished with an hour hand only, and strikes the hours on a fine-toned bell, which also serves the purpose of an inner case. The watch is about 2½ inches in diameter by one in depth, and displays great artistic skill both in its inner and outer construction. It has appended to it, by a steel chain, two old-fashioned seals—one of steel and the other of jasper—both cut with the armorial bearings of the noble family of Torphichen. This watch has been shown to several antiquarians and watchmakers, none of whom can fix the precise date of its construction; but they suppose it to have been made about the time of Charles II. In the old cabinet alluded to, and which in all probability had not been opened for a century, there were also found a number of useful and valuable articles.—*Edinburgh Courant*.

BATH STONE QUARRY-MASTERS.—At request of a correspondent we subjoin a list of the quarry-masters in this district, that misunderstanding alleged to be likely to arise from a recent article in this journal may be avoided:—

BOXHILL—

Randell & Saunders.
Pictor & Son.
Stone & Sons.
Strong.

Hayter.
Brewer.
Noble.

CORSHAM DOWN—Randell & Saunders.

PARLEIGH DOWN—

Stone & Sons.
Long.

Jones.

COMPE DOWN.

Randell & Saunders
(Corsham & Box.)
Stone & Sons.
Edwards.

Sumpson.
Lancashire.
Bull.
Stanard.

THE TUNNEL AT LIME-STREET, LIVERPOOL.—As an instance of the art of surveying in the early engineering days, the following is remarkable:—"After the resignation by Joseph Locke of his post on the Liverpool and Manchester line, another assistant was appointed by George Stephenson to succeed him. In this position, Locke's successor had to construct the tunnel which connects Edgemoor with the station in Lime-street. After it had been laid out, it was asserted at the Board of Directors that serious errors existed, both in the levels and in the direction of the various portions on each side of the shaft. Locke had already acquired some fame, and no little confidence in himself and from others, in his construction of the tunnel to Wapping. It was therefore suggested by some of the directors that he should be asked to make an examination of the impugned plans, and report thereon to the Board. The suggestion was unanimously acceded to. In obedience to their request, he made an investigation. The predictions made at the Board were verified: serious errors did exist. So serious, indeed, were they, that, had they not been discovered in time, the several portions of the tunnel would never have formed a straight line; and in one instance, two parts of the tunnel, instead of meeting, would have given each other the go-by altogether. A report was written; but before it was sent in, it was frankly submitted to the assistant engineer who had succeeded Locke, with full authority to make any alteration in it he chose, consistently with the facts themselves. He expressed himself perfectly satisfied with the way in which the facts were stated. The report was sent in, and was adapted by the Board. The new lines

and levels of direction were to be thus laid down by Locke, whose services they had objected to forego. His successor, however, continued the superintendence of the work; but the satisfactory completion of the tunnel proved the correctness of, and necessity for, the report. Not only to the skilled engineers, but even to the unscientific public of to-day, it may appear astounding that the sections of a tunnel should be so erroneously planned as that one section should absolutely cut past the other; but it should be remembered that railway surveying required the application of a science but little known to many, and absolutely unknown to some whose abilities in a cognate walk had allied them with the early construction of railways."

TOM MOORE AND LADY MORGAN.—"Sitting all alone to-day; just before dinner enter T. Moore! *pardi!* I could not believe my eyes. 'Why, what on earth brings you here? is it to dine with me to-day?' 'No, I'll dine with you to-morrow.' 'My mother was dying, I was sent for, she has seen me, and has revived.' Morgan came in. Moore sat all the time; I never before saw him sit for ten minutes together; he was cordial, and pleasant, and confidential. He told us many strange things. Poor fellow, he has never been able to get out of debt. He told us Rogers had expended £3,000 on the publication of his dandy book. Oh, these amateur authors who write for fashion, while we write for fame or famine! Moore says he thinks Murray would like to publish for me. . . . I had a little dinner got up in a hurry for Moore yesterday; it was got up thus: I threw up my windows, and asked the inmates of the cabs and carriages of my friends as they passed the windows, and sent out some penny porters, and lighted up my rooms, Moore was absolutely astounded when he saw my party. He sang some of his most beautiful songs, in his most delightful manner, without stopping—some of them twice over, and all of them as if every word was applicable to the people around him. Many of his old friends were around him. I said, 'If you stay a day or two longer, I'll do better than this.' 'No, no,' he said, 'never again can such a thing be done. This is one of the few happy accidents which occur rarely; besides, I don't want to efface the impression even by something better.' I never saw him more natural or agreeable. He praised Murray to the skies, and said he was princely in his conduct to authors. Moore disliked me in my youth. He told me at Florence that he thought Byron did not wish to know me, and did wish to know Morgan."—*Lady Morgan's Memoirs*.

TO PROMOTE HEALTH.—Instead of multiplying rules for preserving the health of the sedentary, we shall recommend to them the following general plan—that every person who follows a sedentary employment should cultivate a piece of ground with his own hands. This he might dig, plant, sow, and weed at his leisure hours, so as to make it both an exercise and amusement, while it produced many of the necessities of life. After working an hour in the garden, a man will return to his employment within doors with more keenness than if he had been all that time idle. Tilling the ground is every way conducive to health. It not only gives exercise to every part of the body, but the very smell of the earth and fresh herbs revives and cheers the spirits, whilst the perpetual prospect of something coming to maturity delights and entertains the mind. We are so formed as to be always pleased with somewhat in prospect, however distant or trivial. Hence the happiness most men feel in planting, sowing, building, &c. These seem to be the employments of the more early ages; and when kings and conquerors cultivated the ground, there is reason to believe that they knew as well wherein true happiness consisted as we do.—*British Workman*.

Mr. J. J. LYONS, of 26, Lower Gardiner-street, Dublin, Architect, has been appointed Agent for Ireland for Messrs. Clark and Co., of Gate-street, Lincoln's-Inn-fields, London, the eminent patentees and manufacturers of revolving shutters, brass sashes, stall board plates, &c., &c. A model of Messrs. Clark's newest patent, which is remarkable for its simplicity (all gearing being dispensed with), may be seen, and price-books obtained, at Mr. Lyons' office. Parties can have estimates from Mr. Lyons by forwarding particulars and tracings of the situations to which it is proposed to adapt the shutters. These excellent shutters have been fitted on two fronts of Messrs. Kinahan's extensive establishment in Westmoreland-street and Burgh-quay, and are now being prepared for the Colonial Assurance Company's new offices in Sackville-street (to the order of Mr. Wm. G. Murray, architect, Mr. Beardwood, builder), as well as for other places in Ireland.

NOTICE.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MABBOT-STREET." All other Communications should be addressed to the Editor, 26, LOWER GARDINER-STREET.

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The Dublin Builder.

VOL. V.—No. 73.

CONTEMPLATED RE-ORGANISATION OF THE INSTITUTE OF IRISH ARCHITECTS.

IT is with much pleasure that we notice some signs of a stir amongst the members of the architectural profession in Ireland to revive the dormant (we will not even now say defunct) Institute, and the opportunity for effecting that very desirable object is by various circumstances presented at this period, when all learned, scientific, or professional societies have just inaugurated their respective sessions, and the necessity for some representative body for architectural practice is most keenly felt in a very special manner. We have urged over and over again that the stigma that rested on the architects of Ireland ever since the previous institute lapsed—by a sort of common accord, but without any necessity whatsoever—into a state of nothingness, should be removed as soon as possible; but though very many of, if not all, its members felt as we did, no one would assume the initiative towards its reconstruction. For our part, we shall both individually, and in our journalist capacity, most warmly co-operate with any move that may be made towards this end, but before the first definite advance is attempted, let us hope that all preliminaries as to the basis on which the structure is to be raised may be first carefully digested. It will not be sufficient to the purpose in view for a few gentlemen merely to put down their names as co-operators, and contribute a small annual pecuniary donation, nor for them occasionally to lend the prestige of their presence to its meetings, or its convivial gatherings as the case may be. Every architect who gives in his adhesion to the new or revived Institute or association (or whatever form it may assume) must be prepared to aid it by other means than mere "periodical subscription;" he must respect and obey its rules and cheerfully bear the penalty for their non-observance (which in each case, without respecters of persons, we must urge, should be rigidly enforced); he must either in papers, or in drawings, or in communication of some description, give his brethren the advantage of his learning or his experience in matters appertaining to their pursuits, and he must by acts as well as by talk maintain the rights, the privileges, and the dignity of his profession. Many architects, we are aware, would object to join, if there were to be a compulsory reading of papers—some because their avocations might not permit them to prepare them when their turn to do so should come; others because writing might not be their forte—but very few of them do not meet each month with some circumstance in the course of their professional practice, which, placed before a meeting of their fellows in the shape of a "communication," would not prove interesting or fail to elicit instructive discussion.

The personal differences and jealousies which, unhappily, too often prevail amongst members of this as well as other professions, must also merge into oblivion on their associating themselves with the Institute, and their minds must be fully made up to maintain a feeling of accord, and let every consideration pale before that of the common weal.

Commencing with a good constitution of laws framed out of those of such eminent societies as the Institutes of British Architects, and of Scotland; of the Architectural Associations of London, Liverpool, Manchester, Glasgow, Birmingham, Bristol, &c. (with some members of each of which we had the pleasure of making personal acquaintance at the Conference in July last), with determination to maintain them, and throwing earnestness into the work the projected association will succeed, but without these and other requisites, we predict that it will be consigned to the ignominious fate of its predecessors.

As the officials of every body are its main spring and its vital source, the election of suitable parties to the respective posts comprised under that term is a matter of paramount importance. On the secretary or secretaries honorary, or otherwise, of an Institute,

almost everything depends; not on their diligence or their courtesy solely, but on their capacity, their business system, and their tact; and it seems to us very questionable if any "honorary" secretary can be found in the ranks of the profession, who could or would from *con amore* spare time from his other pursuits to devote the proper share of energy to the duties consequent on the maintenance of such a body. We are clearly of opinion that, even from the inauguration period, there ought to be a properly qualified paid secretary—either with or without honorary secretaries—the payment of course to be small, but sufficient to give an impetus to exertion, for we all know that "*reward sweetens labour*." His duty, in addition to the ordinary recording of proceedings, reading reports, corresponding, keeping accounts, &c., would be to ensure a respectable programme of papers or communications for each meeting, and to be ever vigilant in working up, both in the metropolis and the provinces, new acquisitions to the ranks of membership; and, in a word, to keep the Institute alive, and preserve its several parts in one substantial thriving constitution. Now for a glance at the probable financial side of the question; there are about forty practising architects in Ireland who would be eligible for the senior ranks of membership, and perhaps about as much more of the junior. Suppose, then, that each of the former would come forward (and we feel assured that they will), and pay their *two guineas* entrance fee, and a like sum per annum, there would at once be realized a fund of about *one hundred and seventy pounds* to commence with from that source alone; to which add a probable fund of *fifty pounds*, or thereabouts, from the juniors, forming a total, ample to meet any possible requirements. It must also not be forgotten that there still remains in bank, to the credit of the former Institute, a sum exceeding *one hundred pounds*—which we are confident has proved, a very uncomfortable incubus indeed in the hands of its respected treasurer—and nothing would be simpler than to convene, by requisition, a final special meeting of the still surviving members, and have this fund transferred, *pro forma*, to the credit of the treasurer of the new Institute, who most probably would be the very gentleman who formerly and so worthily held that position in the old.

We shall also like to see occupying the presidential chair such an elder member of the profession as really will strive to aid its purpose both by his presence, his counsel, and his literary contributions. One of the great features in the societies above named is "the president's address at the opening of the session," and again at its closing. The president of the Institute of Irish Architects will naturally be expected to deliver as instructive and comprehensive a discourse on these occasions—all due allowance being made for a comparatively limited sphere—as his contemporary in Conduit-street; and if he be indisposed so to do, with every credit to himself and to the important body over which he presides, he should not undertake it. The inducements to emulation amongst members and associates offered by like societies in England and Scotland, would furnish an example for that in Ireland most desirable to be followed; but this, and other subjects in connection, being matters of detail, we shall not pursue their consideration at present. Indeed we may venture to suggest here—we trust not inaptly—that the undertaking might assume the form of an "Architectural Club," for daily rendezvous, which would prove most especially convenient to the provincial members, and, to a large extent, both a convenient and instructive medium for the local practitioner.

It now only remains for all to join heart and hand, earnestly and cheerfully, to ensure a desideratum which all acknowledge to be sadly wanting, and we sincerely trust that there will be a most numerous and influential gathering on this auspicious occasion. Our readers shall be informed of the proceedings in *extenso* by special report, and as long as the opportunity be permitted to us of giving a place to them in these columns, our friends will do us the justice to believe that we shall experience much pleasure in doing so.

LIGHTING RAILWAY TRAINS WITH GAS.—This long talked of and much desired improvement has at last been realised. A Scotch line has now provided its carriages with gaslight. Only those who know the horrors which accompany railway travelling in darkness can truly appreciate this improvement.

CONSTRUCTION OF LABOURERS' COTTAGES AND SANITARY BUILDING APPLIANCES.*

We are all, no doubt, well aware of the efforts that have been made to improve the condition of the labourer by improving his dwelling, and great has been the benefit obtained; but I think our over anxiety to provide him with a habitation that should come up to our own views and acquirements, rather than to what his wishes, habits, and inclination aspire to, have retarded much of that widespread benefit which might otherwise have been expected. For my own part, I would rather give the labouring multitude something better than they now have, than endeavour to make a few model cottages and labourers' homes.

Our experience, I think, has already taught us that, to build proper abodes for the working classes, will not return a remunerative per-centage; but we may, I think, with a reasonable prospect of success, endeavour to give the labourer something better than he has, and so gradually prepare him for the more perfect abode which we all hope in future time he may obtain.

I think a very grave error is made when a single penny is expended in architectural effect. Finishings and decorations, whereby the dwelling is reduced in size and the proper accommodation decreased, so that turn up bedsteads are found in sitting-rooms, and other such like expedients resorted to, even when such embellishments are carried out with every regard to economy, tend to increase the difficulty of producing a plain, humble, healthy cottage, at a reasonable expense; and hence the inducement to resort to many of the cheap shams and building contrivances of the present day. We are so apt for ourselves to require architectural effect, genteel appearance, and decorations within a limited rental, that it is becoming apparent that no honest builder can get a sufficiently remunerative rent. It is only the so-called "duffing builder" that knows how to set about this. It cannot be wondered at that, in the endeavour to build the labourer's cottage, resort is so often had to what is understood by "cheap building," although the after experience in repairs discourages those who have been misled, so that injury results where benefit was expected.

I will now explain the manner of constructing damp-resisting foundations, ventilated floors or paving, dry walls, and a tight, warm roof. The question that must arise in your minds is, that granted all these are improvements, how are they applicable to a labourer's cottage? My answer is, that a mode of effecting this has recently occurred to me, and, although it has become the subject of recent patents, I now declare that any who wish to be supplied by me with such materials for the purpose only of constructing dwellings for the labouring poor, shall have them free from all royalties or patent charges whatever, so that a larger, healthier, and cheaper cottage may be built at a less cost than has before been done.

I will, however, first direct your attention to the plan of a double cottage, which contains on the ground floor a living room or kitchen, 12 ft. by 12 ft.; a washhouse or scullery, 11 ft. 6 in. by 9 ft.; a larder, 5 ft. by 3 ft. 6 in.; a store, 3 ft. 6 in. by 3 ft. 7 in.; and a large closet to the living room. In the washhouse are a good oven, grate, copper, sink, and dresser; and in the living room a range, with oven and boiler. There is a back door out of the scullery, and a door of communication between scullery and kitchen. The entrance door is in front, where there is a small lobby to the living-room and staircase; this lobby has also a pent externally for shelter. Upon the floor above is a bed-room for the parents, one for girls, another for boys; out of the parents' room is a linen closet and cupboard. The whole is comprised within four walls, without breaks, presenting the least surface to the external atmosphere, a great object in this climate. All the flues are collected into one central shaft; the roof is a simple lean-to, from party-wall to side-wall. There are therefore no gutters, valleys, or other intricacies of roof, and all the water falls into one length of eaves guttering, down one down-pipe, into a rain water-butt. No doubt, some portions of this plan have often been seen, but its simplification and adaptation to my peculiar mode of construction is what I claim your attention to. It would have been easy, and certainly very tempting, to have added breaks and gables, &c., and so to have produced a more picturesque effect. The difficulty has been to avoid this, and economise cost in every way.

I will now proceed to explain the several peculiarities of construction, and, firstly, as to the foundations. No doubt, you have often observed and felt the ill effects of damp rising up the walls by capillary attraction, the most fruitful source of an unhealthy dwelling. Stagnant and impure matters in the soil are sucked many feet up the walls, and become evaporated into the rooms—the higher the temperature the quicker the evaporation, and the renewal of the noxious supply. I recollect that when the Victoria Church, in the Isle of Dogs (the church so celebrated as connected with "Londoners over the Border"), was about to be built, I was asked to visit the spot. I found the soil a deep bog; the cottages of the poor in the

neighbourhood showed fearfully the effect of damp, rising up the wall some six or seven feet in height; the wretched inhabitants, as is too frequently the case, excluded as much air as possible, and so kept up the temperature, that the evaporation filled the room with foul vapour, and the result was ague and fever; and I think you would discredit me if I stated the quantity of "pitch pills" consumed as a cheap, and, therefore, the only available specific. The frost, acting upon the damp walls, destroyed the mortar and injured the bricks, and the ruin of the building was evident. In the church alluded to, my patent damp-proof course was introduced, and the damp so effectually cut off, that an observer, looking through any part of the walls, at a height of a foot above the ground, could see the traffic on the other side. The usual means employed hitherto to prevent this were either a layer of asphalt, sheet lead, or slates in cement; and recently, in attempts at cheap cottage building, we hear of a layer of "gas tar and sand," a layer of "gas tar and powdered slate," a layer of "boiling pitch," a course of "calico immersed in tar and pitch." I think we may next expect to hear of a "Holloway's Damp-Resisting Ointment."

In the construction of foundations, three essentials have been hitherto partially effected by as many separate means:—1st. Damp prevented rising up the walls by the means before named. 2nd. The introduction of air by air-bricks at intervals. 3rd. Strengthening and bonding by the use of rough York-stone, &c.

In my damp-proof course these effects are combined:—Damp rising is completely prevented by a highly vitrified and non-absorbent material, having an air space through the joints. Air is supplied through the perforations, securing a circulation beneath the surface of the walls. Strengthening and bonding are effected by the use of an imperishable material, capable of sustaining 600 feet of vertical brickwork upon each superficial foot. These three requirements are economically combined in the one article, with a saving of one course of brickwork in the height of the building.

The advantages to health and comfort that a properly-constructed wooden floor possesses over stone, brick, tile, or other paving, are well known; the latter, we find, laid upon the earth, or some other medium in connection with it, and damp rising is again the cause of cold and discomfort; and if the surface of the ground beneath any single tile becomes soft or defective, that tile sinks, the surface becomes uneven, and the paving is quickly dilapidated. My patent ventilated paving tile for floors or pavement is made with an under projecting rib or flange which, when laid, forms the bearer of the tile, and extends beyond the edge, receiving upon it the other edge of a similar tile, so that the rib only acts as the bearer of the tile of which it forms a part, but it also forms the bearer of one edge of the next tile, leaving a space under the tile for the free circulation of air, which is there introduced through the damp-proof course before described, and that the air may circulate transversely, as well as longitudinally, in the spaces under the tiles, openings are left in the ribs for the air to pass laterally through from the space under one row of tiles into the space under the next row. In beginning to lay down a pavement, a row of tiles is used, having an additional under rib; the air thus circulates freely under every part of the pavement, insuring its perfect dryness, and it becomes, in all respects, a suitable floor for a cottage, at a far less expense than any description of wooden floor, and, when we consider that there is no necessity for floor joists and sleeper-walls, the saving is very considerable.

We now come to the bulk of the building, viz., the walls. Ordinary brickwork, one brick thick, I consider totally unfitted for the abode of any human being. The single brick readily absorbs rain and moisture, and the through mortar-joint quickly conveys it from the exterior to the interior. Horizontal bond is studied and insisted upon by all careful builders, but, strange to say, vertical bond is never thought of; hence we see the one-brick wall, perhaps strong enough to bear the intended weight, but not stiff enough to stand even during its erection. Thicker walls are too expensive for a labourer's cottage. In seeking for a substitute, where economy is to be considered, the bulk of the material must be found upon the spot or in the locality, and nothing is more generally to be found than the necessary materials for concrete.

We all know that concrete is ordinarily composed of gravel and lime, and is in its proper place when in a trench of a foundation. Being retained therein, and prevented spreading, it will sustain any weight we like to place upon it, but when used in building walls, it is not so retained, and is incapable of enduring cross strains, when the boards, which are, in fact, the moulds in which the cast has been made, are removed. The construction mainly depends upon the adhesive quality of the lime or cement, and when it is no longer retained, cross strains and other causes produce cracks and settlement, and the action of the weather upon the surface soon produces premature decay.

The patent cottage wall is made by pressing clay through a die with hollow spaces, through which the heat readily acts throughout the block where desired, during the process of burning in the kiln, and, when standing on end, it occupies the least possible kiln room. It has been partially separated by knives in the die, but holds to-

* From a paper read by Mr. John Taylor, Jun., Architect, at a meeting of the Society of Arts, on Wednesday, the 18th ult.

gether firmly enough during burning in the kiln and carriage to the intended building. Just before use, the bricklayer or labourer readily separates it into six bricks specially adapted for the reception of concrete.

It will be readily seen that in all the several processes of manufacture, six bricks have been produced instead of one. These blocks, or bricks, when used, are laid by the bricklayer on each side of the intended wall, distant from each other the thickness of it. The labourer then lays concrete in the trench thus formed, the vertical pressure upon the flanges counteracts the outward thrust, and thus the concrete is retained as in a trench, the mould wherein the cast was made remaining to protect the wall from damp, and to prevent the decay of the external surfaces of the concrete by the weather.

Thus each course is thoroughly constructive, and even first-class houses may be thus built to any reasonable height. In a cottage wall, 9 in. of thickness is sufficient, requiring only one course of blocks externally, with the bonding blocks at intervals, and the use of a movable board on the inner face during its construction. After this a little rendering inside with lime, or Scott's cement, which is better, finishes the inner face.

It is calculated that a rod of ordinary brickwork requires 4,352 bricks, which (at, say 82s. per 1,000) costs £7. One rod of the patent walling requires 1,450 of my bricks, which (at 25s. per 1,000), for labourers' cottages, only costs £1 16s. 3d.; add to this the cubical contents of the concrete, 9½ yards, at 16s. 8d. (calculating gravel at 2s. per yard, and lime at 10s.) £1 12s. 8d., together; £3 8s. 11d. the rod of 14-inch work, as against £7, the rod of brickwork.

Now, as to the weight; the 4,352 bricks weigh 9 ton 14 cwt.; the 1,450 of my bricks weigh 1 ton 9 cwt. We thus see that these blocks can be sent in a railway truck or otherwise long distances, where we could never hope to send bricks. When my blocks for facing ordinary brickwork are used, they cause continuous hollow air spaces to be left within the wall, and a great saving in bricks results. Vertical bond is obtained, and the yielding mortar joints are strengthened; and I have found that the walls of a house thus constructed become so quickly dry, that they may be papered almost immediately.

We now come to the crowning matter of my subject, viz., the roof. Slate is generally applicable for roofing, as it admits of being laid to a flat pitch, and is light, but is so absorbent of heat that rooms in the roof become unbearable. Plain tiling has not this objection, but must be laid to a steeper pitch, is much heavier, being nearly of double the thickness, and requiring greater strength of timber. Pan tiling is lighter, but so pervious to weather, as to be only suitable for sheds and similar buildings. My patent tiles may be laid to as flat a pitch as slates; their weight is 656 lbs per square. Plain tiling is 1,624 lbs. per square. Thus it appears that it is less than half the weight of ordinary tiling, pleasing in appearance, and combines all the advantages of slates and tiling without the drawbacks attending them. The price is £4 10s. per thousand, being enough to cover a square for sixteen shillings.

I make a tile wider at one end than at the other, and having flanges raised at two sides, the narrow end becomes the lower end of the lower or trough tile fitting into the wider end. The same tile reversed becomes the upper or capping tile; the two notches in the flanges enable each tile to take an even bearing upon the tile beneath, and allow all the ends of the tiles to range horizontally. The nib upon the upper part of the tile gives the necessary gauge, and firmly secures the tiles the one to the other.

The ridges are formed of a V-shape, having all their joints lidded or capped. These ridges are applicable for any ordinary slated roof, and all screw holes and their defects are avoided.

Having now set before you such particulars as time will permit, I will only just briefly conclude by stating that all the patent materials necessary for the erection of the pair of cottages will be as follows:—

The damp-proof course.....	} £40 0 0
The ventilating paving.....	
The wall blocks.....	
The roofing tiles.....	

I think we may now, therefore, reasonably expect that the remaining works may be done for such a cost as that a larger, healthier, and cheaper cottage may be available for the labourer than hitherto.

Having directed our time and attention thus far to the labourer's interest, let us look a little to our own, and at this season what is more constantly forced upon our attention than the discomforts that appear to be almost inseparable from our own firesides? We all know what is considered the next evil to a scolding wife.

Smoke, deprived of its carbon or soot (which is fuel) contaminates the atmosphere, disfigures and decays our buildings, and an incalculable amount of annoyance arises from smoke and smoky chimneys. Mechanical contrivances to effect the combustion of smoke are ineffective when left, as they must often be, to the care of our ordinary domestic servants. There is an annual loss in London alone of 75 per cent. of heat (an acknowledged fact) which

escapes up the chimney without adding to the warmth of the apartment. The calculation of this does not afford us any consolation in our discomfort.

The air necessary to support combustion makes its way to the fire from door or window, chink, or crevice, and visits our backs with hurtful draughts in proportion to the warmth we are receiving in front. A frequent cause of the chimney smoking is that it becomes filled with the air from the apartment, which, rushing in above the fire, lowers the temperature, and renders the flue incapable of acting as a sufficiently rarefied ventilating shaft, and often incapable of even conveying away the smoke at all.

The peculiar features in my patent grates are as follows:—When the register is closed, the smoke, having ascended from the fuel, and become mixed with atmospheric air, descends and passes through the hottest part of the fire, where the carbon or soot in the smoke is consumed as fuel. The heat which would have rushed up the chimney, calculated at 75 per cent., passes down and around the hollow fire lumps of which the grate is formed, and the external air with which these communicate, enters the apartment in a large body, moderately warmed, not heated. The apartment is supplied with moderately warmed instead of cold air from door or window, and thus thorough ventilation is effected. The cold air cannot rush up the chimney; the flue is therefore rendered a powerful extracting shaft for ventilation, and a highly rarefied, and consequently effectual passage for the products of combustion, thus obviating another fruitful source of smoky chimneys. Should the warmth be too great, the register can be opened, and the action of an ordinary grate will take place. In addition to these advantages, the fire is always under perfect control, and may at all times be brought to any degree of brightness. Its combustion of fuel is so perfect, that what remains in the ash-drawer, after the day's consumption, if proper attention has been paid, might be taken away in the palm of the hand. The occupation of the sweep will be nearly dispensed with.

TO A CATHEDRAL RUIN.

Consecrated ruin,
Mystery profound,
Shadows of the twilight
Circle thee around!
In thy deep recesses
Holy sorrows sit,
Monitory breathings
Through thy deep aisles fill!
Phantoms of dead ages,
Making cold the heart,
With the nameless horror
Felt when souls depart.

And from out the darkness,
And thy tombstones grey,
And thy crumbling arches,
Wrinkled with decay,
Waves a silent glimmer,
Like a phosphor light,
From the spirit world,
And voiceless Infinito;
With a holy radiance
None but sad eyes see,
None but those that linger
Pensive on rev'rent knee!
And beneath the droopings
Of thine hallowed walls,
Feel a viewless Presence
That calms and yet appeals!

Miracle of wisdom
And Celestial skill!
They who built thee slumber,
Cold as thou and still!
But, sublime, their spirit
Passed from them to thee,
And made thee all-living
With faith and sanctity!
Gave thy shaded form
A pervading soul—
Sent down wordless teachings
For the years that onward roll!

For the Ruin whispers,
Echoing to our tread,
Monumental stories
Of faith of men long dead!
Linking Past and Present,
And to future years

The same truth revealing,
And solemn hopes and fears!

And while mortals murmur
The soft sounds of prayer,
Spirits of the blessed
Breathe upon them there!
And the peasant gazing
On the stony page,
As he blooms to manhood,
Or declines to age,
Feels an influence round him
With devotions fraught,
As of friends departed,
In commune with his thought!

For the hoary ruin,
Like a holy man,
Is a mystic symbol
Of more than eye can scan!
Like a sage entranced
'Midst his acts of praise,
Wondrous visions rising
Before his spirit gaze;
Till each furrowed feature,
And his transfixed eyes,
Glisten with the glory
Of heavenly surprise;
And from out the stillness
Of th' illumined soul,
Spells of potent meaning
O'er other bosoms roll!

So beneath thy shadows,
Venerable pile!
Linger silent sorrows
For sins that men defile!
And thine aisles so gloomy,
Like dark forest ways,
Tell us of the doubtings
That dim our dying days;
While thine arches clasping,
As with hands in prayer,
Call us to Repentance,
And bid us flee Despair!
And thy spires uprising
Raise our hopes on high,
Ever pointing upwards
To the eternal sky.

PERSIAN GULF TELEGRAPH.—The manufacture of the cable for this line will be commenced forthwith, under the superintendence of Sir C. Bright and Mr. Latimer Clarke, the government telegraphic engineers. The English and foreign system, which extends to Bagdad, is now being carried forward as part of one great scheme from Bagdad to the head of the Persian Gulf, and the communication is being simultaneously carried forward from Mekra to Funachee, where it will unite with the Indian Telegraph system—a total length, when completed, of 6,000 miles, as between Calcutta and Cornwall.

PRESENTATION TO CHARLES LANYON, ESQ., J.P.,
ARCHITECT, AND C.E.

ON the 15th ultimo a number of gentlemen, landowners and others, of the county of Antrim, assembled in the dining-room of the County Court-house to present Chas. Lanyon, Esq., ex-Mayor of Belfast, with a testimonial of their esteem and regard. Amongst those present were:—

Sir Edward Coey; John Lytle, Esq. (Mayor); Dr. McGee, J.P.; Rev. R. W. Bland, J.P.; Messrs. J. Thompson; D. Taylor, J.P.; J. W. S. McCance, J.P.; John Smith, J.P., Orland; Hill Hamilton, J.P.; F. Hutchinson, J.P.; J. Thompson, J.P.; T. Montgomery, J.P.; R. Davison; T. L. Hutchinson, J.P.; W. T. B. Lyons, J.P.; J. Montgomery, Benvarden; Captain Murray, J.P.; J. Leslie, Ballymoney; Rev. W. Bruce; W. Ewart; R. Grimshaw, J.P., D.L.; B. Hughes; Rev. Dr. Miller (Vicar); Rev. G. Shaw; M. Saffern, Esq.; A. Tate (County Surveyor); J. Hamilton; Wm. Coates, J.P.; Henry H. McNeill, J.P.; J. Torrens; J. King; C. Shaw; F. Kinahan; A. Moore; J. Coates (Secretary to Grand Jury); P. Johnston; J. Girdwood; J. Forbes; R. Musgrave; Dr. Patterson; Dr. Ferguson, &c.

Robert Grimshaw, Esq., J.P., D.L., was called to the chair.

The Chairman, on rising, said, he had much pleasure in taking that position on the occasion. He supposed he owed that pleasure to being the oldest magistrate then present. Since Mr. Lanyon's settlement in the county he had abundant opportunities of witnessing the works which Mr. Lanyon had planned and completed, and he believed that no county in which he had been possessed works more complete or more suitable than those constructed by Mr. Lanyon. Mr. Lanyon had never lent himself to anything unworthy of the position he had occupied; and with regard to a specimen of Mr. Lanyon's taste in architecture, they need not go out of the building in which they were then assembled to find it. The building was one of the most beautiful in the North of Ireland, and highly creditable to Mr. Lanyon's professional ability.

Mr. Coates, Secretary of the Grand Jury, then read an address to Mr. Lanyon as follows:—

TO CHARLES LANYON, ESQ.

Sir—It has been your fortune to reach a position in society which could only have been attained by a steady course of strict integrity. In the discharge of your official duties you have gained universal respect, which is the highest reward of merit. As county surveyor, whilst you related unnecessary projects, you never failed to achieve improvement; and you enforced the performance of contracts as much by urbanity as by firmness. Safe and expeditious communication between distant districts is a strong evidence of a nation's prosperity. There are many persons now living who remember the tediousness and difficulty of a journey in this county from one town to another. But even before the introduction of railroads your suggestions and efforts had made travelling comparatively easy. In the new lines of road designed by you the ability of the engineer is apparent. The buildings which you have erected display in like manner the taste and genius of the architect. You will have left many monuments of professional skill to be admired by after ages, and your name will live in the memory of all who have enjoyed your friendship, or had the advantage of your acquaintance. Although you have deemed it right to relinquish the situation which, during twenty-five years, you so efficiently occupied, we, the landowners and inhabitants of the county of Antrim, are happy to believe you will still remain amongst us. On your retirement from office we desire to express the sense we entertain both of your private and public worth, and we request your acceptance of the accompanying tribute of our esteem, which would have been of greater value if the subscription of individuals had not been designedly limited. It was thought a small, however inadequate, gift from many would be preferred to a more costly donation coming from a few. With sincere wishes for your happiness, we beg leave to remain your faithful friends.

REPLY.

My Lords and Gentlemen—I accept with very sincere pleasure and gratitude the very handsome testimonial which you, the noblemen, landholders, and inhabitants of the county of Antrim, have presented to me on the occasion of my relinquishing the appointment of County Surveyor. Much, however, as I prize your valuable gift, I must say that the flattering address with which it is accompanied, expressing your appreciation of my services as a public officer, and your regard and esteem for myself as a private individual, is still more valuable to me than the gift itself. During the long period of my official connexion with the county I always felt that I was honoured with the confidence of those under whom I was acting, and there could be no greater stimulus to exertion in the execution of my duties than the knowledge that I possessed such confidence. Truly, indeed, do you say that the improvement of communication between distant districts is a strong evidence of

a country's prosperity. Pleasant is the reflection to me that I have in any way, however humbly, been instrumental in the developing this county, or aiding the march of improvement which is so apparent in it. Anxious, however, as I may have been to suggest improvement, little could have been done without that liberality and love of progress which mark Antrim amongst counties and Belfast amongst towns. You have been pleased to say that in the numerous works which I have carried into execution the performance of contracts has been enforced as much by urbanity as firmness. I can only add that I have always found, in my dealings with my fellow-man, that the interest of the employer was better secured by a kind and fair consideration of the claims of the employed than by the exactions of a hard taskmaster. One of the greatest gratifications which I have experienced as the result of this feeling has been the satisfactory manner in which the numerous public works of the county have been executed. I reciprocate most fully your flattering wish that I may still live amongst you, and though no longer your public servant, yet as your friend, to continue to deserve your regard and esteem, and to enjoy, in the private position to which you have so flatteringly alluded, the society of those who, with impartiality and firmness, have always supported me in my public duties. Again thanking you most sincerely and heartily for this further proof of your kindness and generosity, which is rendered even more agreeable from the nature of the gift, showing the esteem and regard of the many, not merely the liberality of the few. Believe me to remain, my lords, and gentlemen, yours most faithfully and gratefully,—CHARLES LANYON.

The presentation consisted of two splendid candelabra of solid silver, purchased at Messrs. Hunt and Roskelle's, New Bond-st., London. The *plateaux* of polished silver appeared about 18 inches in diameter. On each pedestal three figures, in dead silver, were placed, typical of Science, Art, Justice, Prudence, Liberty, and Success. The column of each candelabrum was decorated with shamrock, and surmounted with five branches for composite candles or other luminaries.

LABORERS' COTTAGES.

At the meeting of the Society of Arts on Tuesday week, a paper was read on the "Construction of Laborers' Cottages and Sanitary Building Appliances," by Mr. John Taylor, jun., architect. The author deprecated attempts to arrive at too great perfection in the construction of the laborer's cottage, as these only tended to defeat the end in view—that of providing for him the best habitation that was possible at a really moderate cost. He thought it was a grave error to expend anything in mere ornamental and architectural effect. Everything should be exclusively devoted to the production of a sound and healthy dwelling. He first explained the construction of the particular form of damp-proof foundations that he had invented and found most effective. By this means, he stated that:—1st. Damp rising is completely prevented by a highly vitrified and non-absorbent material having an air space through the joints. 2nd. Air is supplied through perforations, securing a circulation beneath the surface of the walls. 3rd. Strengthening and bonding are effected by the use of an imperishable material, capable of sustaining 600 feet of vertical brickwork, upon each superficial foot. These are economically combined in the one article, with a saving of one course of brickwork in height of building. He next described his mode of constructing the walls. These consist of concrete retained by blocks of baked clay of a peculiar form, and it was stated that walls so constructed were not only much superior in dryness and solidity to brickwork, but that the cost was not more than half. The peculiar form of tiles used for the roof was next described. They may be laid to as flat a pitch as slates, and their weight was stated to be less than half that of ordinary tiling, besides being more economical. In conclusion, Mr. Taylor described a form of fire-grate, which he said possessed unusual advantages. Amongst the peculiar features in these patent grates are that, when the register is closed, the smoke, having ascended from the fuel, and become mixed with atmospheric air, descends and passes through the hottest part of the fire, where the carbon in the smoke is consumed as fuel. The heat which would have rushed up the chimney, calculated at 75 per cent., passes down and around the hollow firelumps of which the grate is formed, and the external air, with which these communicate, enters the apartment in a large body, moderately warmed, but not heated. The apartment is supplied with moderately warmed instead of cold air, from door to window, and thus thorough ventilation is effected. The cold air cannot rush up the chimney; the flue is therefore rendered a powerful extracting shaft for ventilation, and an effectual passage for the product of combustion. The combustion of fuel is stated to be so perfect that what remains in the ash-drawer after the day's consumption, if proper attention has been paid, might be taken away in the palm of the hand. A discussion ensued, in which Messrs. J. B. Denton, C. Bagnall, R. Rawlinson, G. Godwin, F.R.S., G. F. Wilson, F.R.S., Dr. Greenhow, and others, took part.

EASTERN CATHEDRALS.*

NORWICH CATHEDRAL.

"The painted rededor altar-piece of the Jesus Chapel; a picture, according to Dr. Waagen, 'of great significance in the history of English painting.' 'It contains, in five compartments, the Scourging, the Bearing the Cross, the Crucifixion, the Resurrection, and the Ascension; and judging from the forms of art, may have been executed between 1380 and 1400. Here that idealistic tendency so often mentioned is still throughout adhered to: the well-arranged drapery is of great softness; the colouring powerful, and in many of the heads of great warmth; finally, the treatment in size-colours, broad, and in full body. Both the figures and the raised elegant paterius of the gold ground, entirely resemble the indubitable English miniatures of the same period; so that there is no question in my mind as to the English origin of this picture. Excepting the Bearing of the Cross, of which much has fallen off, the preservation may be called good, and a glass over it prevents any further mischief.'† An engraving from this altar-piece will be found in the Norwich volume of the Archaeological Institute, together with a paper on the subject by Mr. Albert Way, who (as does Mr. Digby Wyatt) considers it a work of the Siennese School (circa 1307). The heads, he observes, especially that of St. John, 'recall strikingly the works of Simone Memmi. That artist, however, died as early as 1345.'"

"A vault of Early Decorated character crosses the north choir-aisle, and supports a gallery. The vault is of two bays; and in the eastern bay, at the head of the arch, is the quatrefoil opening into the choir, which has been already noticed. The vault has long had the name of the 'Confessionary,' and Blonfield (History of Norfolk) suggests that the priest, in the choir, heard confessions in the foiled opening, whilst the people remained in the aisle. The vault could not possibly, however, have served for this purpose, since the opening on the choir side is only a few inches above the pavement, and the priest must have laid himself on the ground in order to hear the confession through it. Professor Willis suggested it was made as a hagioscope, to afford a view of the high altar from the aisle. Mr. Harrod, with more probability, considers that the Easter sepulchre stood within the choir at this place, and that the opening 'permitted the important duty of watching the sepulchre light during the ceremonies of Easter, without entering the choir.' The gallery over the vaulting in the aisle, he adds, 'might contain a pair of organs for assisting the service here and in Jesus Chapel adjoining.' . . . 'The old singing-school was in the north aisle, east of the gallery, and in front of the entrance to Jesus Chapel, a position having no possible recommendation, unless it were that the organs were placed above.'‡

ELY CATHEDRAL.

"Owing probably to its situation, no very important town ever rose up about the monastery. The houses which line the streets are unusually small and low; and the long ridge of the cathedral roofs with their towers and pinnacles, lifts itself above them on every side. Other English cathedrals form only part of the cities in which they stand; here the cathedral is, in fact, the town; and nowhere, perhaps, in England is there so complete and suggestive a picture of what a great monastery—such as Glastonbury or Melrose—must have resembled whilst its buildings were yet entire, and its church formed a landmark for all the surrounding district.

"Entering the cathedral, the visitor finds himself within the great west tower, through the eastern arch of which a superb view is commanded, up the nave, beyond the arches and graceful tracery of the lantern, and beyond the rich screen, to the coloured roof of the choir, and the stained glass of the distant eastern windows. When the painting of the nave roof, which is now (1861) in progress, shall have been completed, the view from this point will only be exceeded in interest by that from the south-west angle of the octagon.

"The tower, originally the work of Bishop Geoffry Riddell (1174-1189§) was much altered and strengthened during the Perpendicular period; when the transition Norman arches were contracted by those which now exist. The zigzag moulding above marks the extent of the original arches. The work, after the erection of the upper or decorated story of the tower, had probably shown signs of weakness; and the fall of the central tower in the preceding century no doubt led the monks to apply a remedy to this one in due time. Two tiers of arcaded galleries, the arches of which have trefoil head-

ings, but are massive and Norman in character, run round above the pier arches; and above, again, are three Pointed windows in each side. On the west side the lower arcade is pierced for light as well as the upper. The window over the entrance, filled with stained glass, is modern, and was inserted early in the present century.

"The interior of the tower has been restored since 1845; when a floor above the lower arches was removed, and the present painted roof inserted. This was designed and executed by H. L. Styleman le Strange, Esq., of Hunstanton Hall, Norfolk.

"The style of decoration is that which prevailed in England about the close of the 12th century, when this part of the tower was completed. The subject, placed appropriately at the entrance to the church, is the Creation of the Universe. Stems and branches of foliage embrace and sustain five circles placed crosswise. In the upper circle towards the east is depicted the *Dextra Iomini*, the 'Right Hand of the Lord,' as the emblem of the Almighty Father. The central circle contains our Saviour in an aureole, in the act of exercising creative power. In his left hand he holds the globe of the world; and He is surrounded by the sun, moon, and stars. About Him is written the text, 'I am before all things, and by me all things exist.' In the circle beneath is the Holy Dove, brooding over the waters of the newly-created earth. Rays of light proceed from the *Dextra Domini* in a threefold manner, and embrace within their influence the other two persons of the Godhead. In the other circles are figures of cherubim and seraphim holding scrolls, on which are the words 'Holy, holy, holy, Lord God of Sabaoth.' Round the whole is the text from Revelations, ch. iv. 11, 'Thou art worthy, O Lord, to receive glory and honour and power, for Thou hast created all things, and for Thy pleasure they are and were created.'

"It was while this work was in progress in 1845 that Mr. Basevi, the architect of the Fitzwilliam Museum at Cambridge, fell from the upper roof, and was killed on the spot. He was buried in the north choir-aisle, where a brass commemorates him."

"The roof of the nave, as originally constructed, was probably finished internally with a horizontal ceiling stretched across from wall to wall, as is the case at Peterborough and St. Alban's. This was the most usual mode in Norman times, where no stone vault existed. The external form, as well as that of the transept roofs, appears, from the weatherings still existing, to have been truncated. In consequence, however, of the deviation from the original plans made by Alan de Walsingham when he erected the central lantern, it became necessary to re-construct the roof over this portion of the building; and the result was the high-pitched form which exists at the present day, internally braced with a series of interlacing timbers in such a manner as to form an irregular polygonal roof sufficiently high to surmount the newly inserted lantern arch. This roof seems to have received no kind of finish until, after the painting of the tower ceiling, it was determined to extend the decoration to that of the nave, the roof of which was accordingly coated internally with boards. The paintings on the tower roof, and on that of the six westernmost bays of the nave, are the work of Mr. Le Strange, of Hunstanton, in Norfolk, who had spared no labour in the examination of manuscript authorities for Norman ornamentation, and of existing remains of Norman painting in English and foreign churches. At his death, in July of this year (1862), the paintings of the remaining half of the nave have been committed to Mr. Gambier Parry, of Highnam, in Gloucestershire, who is now occupied upon them. The general design of Mr. Le Strange's work was cast upon the model of the Jesse tree, which was itself to be incorporated into the work as the latter part of the history. But, as the painting advanced, the introduction of large sacred subjects seemed far more desirable on so enormous a surface; and the change has accordingly been made, in accordance with Mr. Le Strange's own judgment.

"The subjects of these paintings are the principal incidents of reference to our Lord, from the creation of man by 'the Word of God' to his final coming in glory.

"The six subjects completed by Mr. Le Strange, beginning at the west end of the nave, are in the

"1st bay. Creation of Adam.

"2nd. The Fall of Man.

"3d. The Sacrifice of Noah.

"4th. Abraham and Isaac;—'God will provide himself a Lamb.'

"5th. The Vision of Jacob's Ladder.

"6th. The Marriage of Boaz and Ruth, from whom springs Obed the father of Jesse.

"Twenty-four prophets and worthies, supporting as it were this central line, are arranged along the entire length of the roof, two in each bay, holding scrolls inscribed with their respective prophecies of the coming of our Lord. They are as follows:—

"1st bay. Abraham and Jacob.

"2nd. Job and Balaam.

"3rd. Moses and Nathan.

"4th. Jonah and Joel.

"5th. Amos and Hosea.

"6th. Isaiah and Micah.

* "Handbook to the Cathedrals of England. Eastern Division—Oxford, Peterborough, Norwich, Ely, Lincoln." London:—John Murray, Albemarle-street; J. H. and Jas. Parker, Oxford.

† Art Treasures in Great Britain, vol. iii. p. 437.

‡ Churches and Convents of Norfolk, p. 298. The Easter sepulchre at Northwold, in the county of Norfolk, "has an arched aperture, in a similar position to this quatrefoil, communicating with the sacristy adjoining."

§ The extent of Bishop Riddell's work is uncertain. "Novum opus usque occidentem cum turri usque ad cumulum fere perfectum."—*Monach. Elnensis, ap. Wharton, Anglia Sacra*, i. p. 631. The "novum opus" may possibly refer to the nave as well as the west transept. The upper portions of the tower and transepts are Early English, and probably the work of Bishop Riddell's successor, William Longchamp (1198-1199).

"In the remaining six bays the series of sacred subjects, and large figures supporting them, are proposed to be—

"7th bay. Jesse; represented in the ancient manner, as lying asleep:—'There shall come forth a Rod out of the stem of Jesse, and a Branch shall grow out of his roots.'

"8th. David.

"9th. The Annunciation.

"10th. The Triumphal Entry into Jerusalem:—'Hosanna to the Son of David.'

"11th. The Tomb, with the angels sitting at the foot of it.

"12th. The Majesty:—'The Son of Man shall come in his glory, and all the holy angels with him.' Matt. xxv. 31.

"These subjects, like those painted by Mr. Le Strange, will be supported by Prophets and Evangelists, and the figures of the persons of our Lord's genealogy.

"Along either side of the ceiling is a line of busts, exhibiting the generation of our Lord up to Adam, according to the Gospel of St. Luke. The series begins with the great figure of our Lord, round which is the inscription, 'Being, as was supposed, the son of Joseph.' Thence it runs back to the western end of the ceiling, each bust being inscribed with the name, until it arrives at 'the son of Adam,' where it connects itself with the central medallion of the first bay, round which is inscribed, 'Which was the Son of God.'

"The evangelistic symbols are placed two at either end of the ceiling. They were prefigured by the prophet Ezekiel, and are here introduced in order to exhibit the union of the old dispensation with that which was to follow. The date of the commencement of the painting, in 1858, is shown at the western end by the arms of the then Bishop and Dean. The year of its completion will be marked by a similar record at the eastern end.

"In the present state of the cathedral the ceiling suffers much from the quantity of raw light which streams through the clerestory windows, and from the coldness produced by the uncoloured state of the walls and arches. It has been determined, however, to proceed with the colouring of the walls as soon as possible: and other improvements will no doubt follow."

THE DUBLIN EXHIBITION PALACE AND WINTER GARDEN COMPANY.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—Will you kindly permit me to make a few remarks upon the injustice practised towards the competitors, which will in a great measure account for the coolness so suddenly evinced for a project brought forward under most favourable auspices, having the approval and personal support of the best men in Ireland?

The directors advertised that they would give £150 premium for the design they should select, and £75 for the second best; the conditions were that the designs put in should be in "finished lines," or "tinted in Indian ink," and that "each competitor should be able to show that his design could be carried out for £35,000." These conditions were accepted by twenty-four persons, and a collection of designs exhibited in College-street, for iron and glass structure, combining all the excellencies of the various Crystal Palaces of Hyde-park, Paris, New York, Dublin, Manchester, Sydenham, Florence, and the monster of Kensington.

Those who complied with the conditions complain, and justly, that the directors did not observe their terms. In the first place they allowed coloured drawings to be exhibited, which was manifestly unfair towards those whose designs were in keeping with their stipulations. Again, BEFORE exhibiting the designs, the directors ought to have ascertained from the authors whether they were prepared to "show" that the design could be "carried out" for £35,000; if not, then such should have been excluded. I am sure you will see, and the public also, that to place in competition designs which had been carefully prepared to come within the stipulated sum, £35,000, with those prepared regardless of what the amount would be to carry them out, was placing the observer of conditions at great disadvantage.

In one instance £150,000 would have been required to carry out the design exhibited—viz., that of J; in another, at least £100,000 to carry out that of E.

After a considerable time has elapsed we are politely informed that our designs are to be returned to us, nothing more, not one word even of thanks for contributing to an exhibition of drawings which must have done some good, by aiding the education of the public eye, while it improved the judgment of the directors; nor are we informed whose designs are chosen; this we read in the public prints—that a certain design has been approved by the committee, and the author desired to furnish working drawings. I sincerely congratulate the author; at the same time it does not prevent my expressing an opinion, that the directors, by adding £5,000 to their advertised sum, ought in justice to those whose designs were within the mark, to have allowed them an opportunity of competing with

"Blue Star," by improving their designs by that addition. So much for the just cause of complaint on the part of competitors. The only redress the directors can now consistently make them is to divide the £225 between them; to give no premium is very paltry on their part, and certainly no gentleman on the directory would act in his individual, as they have acted in their corporate capacity; but it has been often said, "Corporate bodies have no soul"—it looks like it in this instance.

The depreciation of the shares arises from the fact that the design chosen will require nearer £60,000 than the sum announced to carry it out, and will thus require a staff of glaziers to be permanently kept as part of the establishment. These things being evidenced to him who can measure a drawing, and who are also competent to judge of what a roof ought to be, and the conclusions such men come to having obtained circulation among the shareholders, they see very little chance of dividend.

In conclusion, I would recommend to the directors of the company the perusal of the "proceedings of the Institution of Civil Engineers, for 1851," and they will find much to enlighten them on glass and iron structures, particularly on "roofs," from such men as Wyatt, Airy, Wild, Heppel, Russell, &c.

I enclose my card, and remain yours obediently,

A LATE COMPETITOR WITHIN THE STIPULATIONS.

IRISH MANSIONS.

MARKREE CASTLE, COUNTY SLIGO, NO. 1.

ANXIOUS that the architectural merits of a few of the mansions of the Irish nobility and gentry—which in many regards bear most favourable comparison even with the baronial halls of old England—should be brought prominently before the public at both sides of the Channel, we commence herewith a series of illustrations—our present view showing an elevation of the magnificent seat of Rose Cooper, Esq., most picturesquely situated near Ballisadare, in the county Sligo. As we purpose giving another view of this structure, we postpone particulars till it appears. We shall thank any of our readers who will direct our attention to any mansions in Ireland of intrinsic architectural importance.

Reviews.

"How Ireland may be Saved; or, the injurious effects of the present system of Agriculture on the prosperity of Ireland and the social position of the Irish people." By JOSEPH FISHER, London, Ridgway.

THIS pamphlet is a reproduction by the author of letters addressed to his present Excellency the Lord Lieutenant, which appeared in the *Morning Herald* between the months of January and August last. It forms a very valuable and practical statistical reference on numerous questions in which national interest is involved, educationally, commercially, and agriculturally; and we trust that the assiduity of the author in collecting most important facts and his ability in putting them forward comprehensively, will be appreciated as they unquestionably deserve. We quote elsewhere a few paragraphs therefrom, which will serve better to show the character of the work.

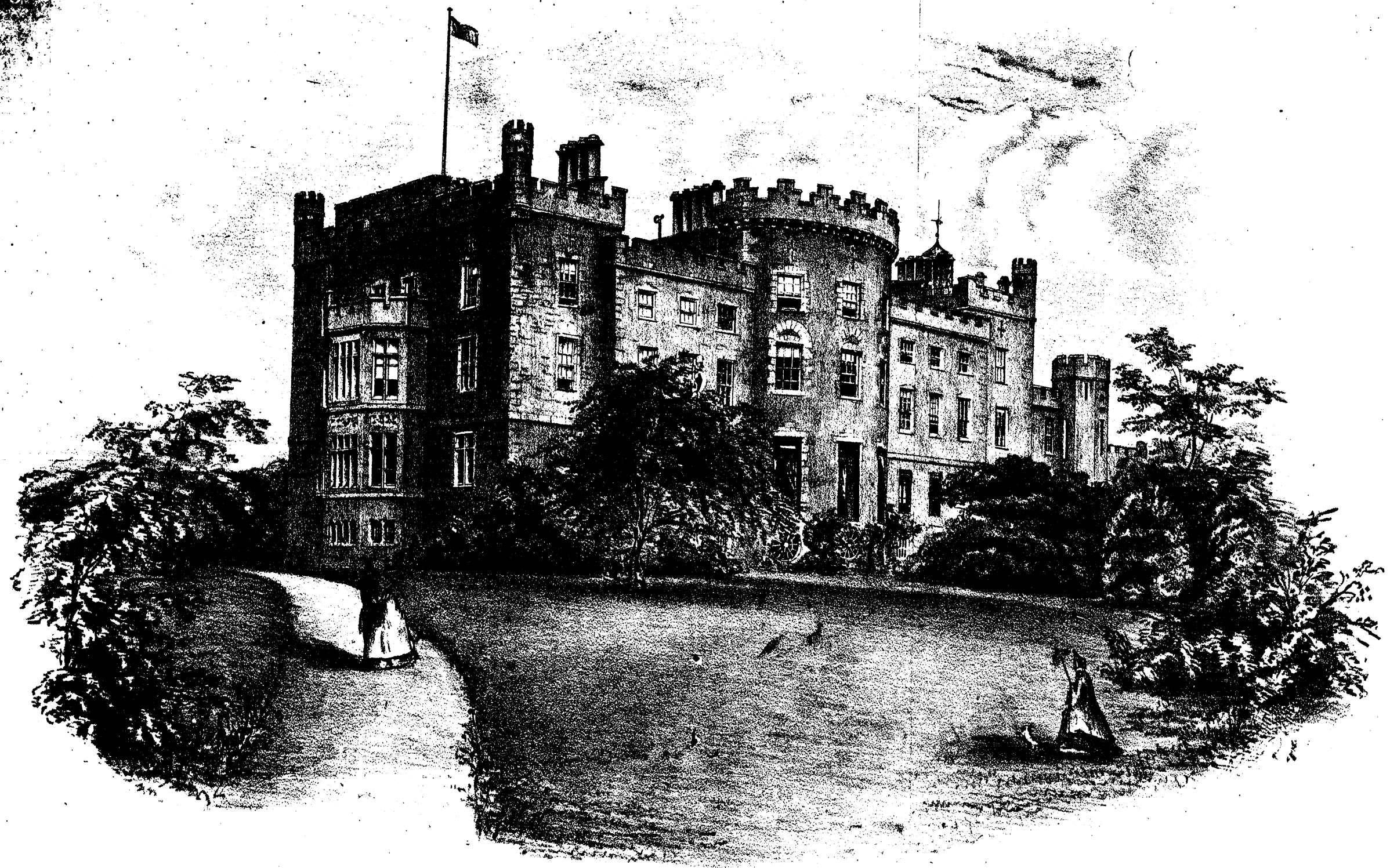
"National necessity for the Registration of Births, Deaths, and Marriages in Ireland, under a law and with a machinery assimilated to what is established in England and Scotland." By JOHN M'EVON. Dublin: Murray & Co.; E. Ponsonby; H. Morrow.

THE author's name of this little work has been so frequently before the public in his earnest endeavours to attain the object set forth in the title, and his valuable arguments in its favour based on laborious statistical deductions, have also been communicated so frequently and so recently through the pages of this journal, that it would be quite a supererogatory task to enter on a critical review. There is one point, however, on which he seems somewhat in error, viz., in assuming that the machinery in England and Scotland of the registration system is the *ne plus ultra* of perfection. It has been proved to be capable of much desirable modification. We must therefore hope with the author to do not only as well as, but better than, our neighbours, when the proposed registration is entered upon.

The demise of Thomas Ellis Owen, Esq., the Mayor of Portsmouth, was announced last month. The deceased, who was an architect of some eminence, and Government surveyor for the South Hants districts, was eldest son of Jacob Owen, Esq., late architect to the Board of Public Works in Ireland, and brother to the present architect to that body. Mr. Owen had been twice Mayor of Portsmouth,

William Gifford

Jan. 1st 1863



MARKREE CASTLE, COUNTY SLIGO.

E. J. Hardy Lith. 29, Dame St.

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METROPOLITAN SUBTERRANEAN RAILWAY.

THE spring, when this line was to have been finished, and the summer, too, have come and gone, but the city is still, in point of time, just as far distant from the west as ever it was. All the little delays, and all the great annoyances of overcrowded traffic which it was to mitigate, if not to do away with, are still as rampant and glaring as ever, and the public and the shareholders also seem to be getting impatient in the desire to know the reason of the long delay. The varying rumours and constant speculations to which the postponement of the opening has given rise have been numerous enough, one would have thought, to enable some to come near the truth as to the real causes of the delay. The latter, however, have been so very simple that no one has guessed them. The breaking in of Fleet Ditch, though it in no way affected the line itself, caused serious loss of time in completing the main city terminus at Farringdon-street. From the time when that obstacle was removed, now more than a month past, the line could have been worked easily at its *minimum* rate of traffic, which is to be no less than 90 trains a day each way. The only reason against such working in October last was the wise determination of the directors—in which they have been heartily supported by their able engineer, Mr. Fowler—not to run a single passenger train until every minute detail in relation to their stations and signals was finished, and arranged in the most perfect working order. The directors seem to be well aware that in a line on such a novel plan, and having so many peculiar features in its construction, it would be dangerous to open it to the public while still imperfect, or till they had so organised all their various departments as to give confidence by the customary appearance, which on these works denote a well-matured and deliberate system. Thus, even in such trifling matters as painting stations or preparing and furnishing waiting-rooms, nothing has been left incomplete, and from Farringdon-street to Paddington the whole line is now absolutely ready and perfect in every branch, even down to the liveries of the guards and porters. The usual ten days' notice was given last Friday to the Board of Trade to inspect the mechanism of the signals, and when these have been examined the line will open, and, as we have said, with as much completeness of detail as if it had been twelve months in working order.

The importance of this new route, both for the relief it must afford our overcrowded streets, and in diminishing in point of time the space between the various districts of this unwieldy city, makes it one of the most remarkable of all our railway triumphs. It is, for a London line, the cheapest that has ever been constructed, though the engineering difficulties it presented at every hundred yards were the most formidable of the kind that have ever been encountered. Sewers and gas and water-mains had to be respected, drains for the tunnel itself to be made, heavy buildings in near proximity to the excavations to be kept secure, and even the thoroughfares under which the shaft was driven, like an entrance to a mine, left undisturbed, with all the heavy traffic rolling incessantly overhead. How great were the difficulties these almost irreconcilable conditions imposed—and, above all, when it became necessary to make underground junctions, as at King's Cross, where a labyrinth of complicated brickwork for the tunnel had, in fact, to be invented for the purpose—only engineers can understand.—*Times*.

THE PROPOSED CONVERSION OF STEPHEN'S-GREEN INTO A PUBLIC PARK.

THERE is a very strong and a very general feeling that the happy suggestion of Mr. Justice Fitzgerald—endorsed by our excellent Lord Mayor (Moylan), and many other distinguished citizens—viz, that this green should no longer be a "closed borough" for a favoured few, but a *free park* for the masses; and as we heartily co-operate in the project, we—with a view of rendering every publicity possible to the wishes of its promoters—give the following article thereupon from our able contemporary, the *Irish Times*, which very faithfully expounds on our view of the question expressed in previous numbers:—

The committee for opening Stephen's-green to the public have not the slightest intention of ceasing their exertions. They have recently been engaged in obtaining the votes of the owners of house property in the Green for or against the measure. They have met with most encouraging success. Of those who were canvassed no less than thirty-seven, in addition to the presidents of clubs and public institutions, expressed their warmest sympathy with the object, and but twelve gave their votes against it. Many of the owners of property in the Green are in England or on the continent, and cannot be immediately consulted. The committee have determined, indeed, they never intended otherwise, to continue their exertions. They might feel called upon to resign the struggle gracefully, if a considerable majority, or any majority, of house-owners should declare against them; but when the committee have reasons

to believe that a very inconsiderable, and, with one exception, influential minority is opposed to them, they rightly consider it to be their duty to support the wishes of the greater number of owners and the public benefit of the citizens.

The committee consists of noblemen and gentlemen of every creed and party. A great public measure like the opening of St. Stephen's-green should be supported by members of every class. We think that the names of the Duke of Leinster, George Woods Maunsell, and Judge Fitzgerald, are sufficient to show the open character of the committee. To desire that it should be exclusive would be most illiberal and ungenerous.

Every citizen of Dublin knows that the value of property in Stephen's-green has deteriorated of late years. We do not see round the Green that energy and spirit displayed in the ornamentation and reconstruction of buildings which are obvious in other parts of the city. The question now is, not that of the Green Commissioners, who profess to be alarmed lest the value of property should be diminished, but that of the owners of property, who see a favourable opportunity for increasing its value. If the opening of the Green to the public, on the prudent and wise rules established by the committee, is to affect the value of property, it must certainly be to increase it.

We have the experience of London to guide us in this matter. Carlton-terrace is the favourite residence of the very *élite* of the aristocracy, yet the windows of Carlton-terrace look out upon St. James's Park, now a place where

"The nineteenth century gambols on the grass."

The value of property has increased since the opening of the park; similarly, Park-lane is another chosen place of residence for the nobility; but Park-lane opens upon Hyde-park, also a place of public recreation. Her Majesty has not objected to witness the sports of people from her palace windows; but majesty, it appears, is less exclusive than the Commissioners of the Green. She finds pleasure in seeing crowds of people enjoying "trees, plants, shrubs, and flowers," in innocent recreation; and one of the last acts of the late Prince Consort was to purchase a house directly overlooking the chief resort of the people, out on their brief holiday.

The commissioners have now held in their hands the management of Stephen's-green, and what have they done with it? how has it been ornamented? how improved? how planted? Is that piece of mossy sward, in its present condition, worthy of the centre of a great and generous city? Is it to be compared with the public gardens or squares of a fifth-rate continental town? The instant the Green is open to the public, then ornamentation will begin. The people will become familiarised with the beautiful in nature and art. They have proved themselves worthy of every confidence. For nearly two years a purely scientific garden has been open to many thousands at a time, and yet not a flower stem has been injured.

It would be most desirable that the object of the committee could be attained without opposition. No member of that committee could desire to lessen the value of another's property. Respect for the living and the memory of the dead should alike influence the commissioners to yield gracefully to the wishes of all classes of her Majesty's subjects. If they will not, then when the votes of all owners of property are ascertained, a very short bill introduced into parliament will settle decisively the question, whether these commissioners hold the Green as a public trust or as their own private property.

MONUMENTAL VANDALISM.

A CORRESPONDENT calls attention, in the following terms, to the present dilapidated and neglected condition of a highly artistic ancient monument in Thurles churchyard:—

THE FINE ARTS.

To the Editor of the *Freeman*.

SIR—Permit me, through your instrumentality, to direct attention to a very beautiful specimen of mediæval art (or at least what the ruthless hand of dilapidation has allowed to remain of it). I allude to a tomb in Thurles churchyard, consisting of two raised recumbent figures—one a knight in armour, the other his wife. It stands surmounted by a very perfect base of raised figures, I believe representing the twelve apostles. There is an inscription on the tomb nearly obliterated, and the tomb itself is fast falling into decay, the figures on which it is surmounted, in some instances, falling about the graveyard. A trifle would restore this magnificent tomb, and it is only necessary to direct attention to it. I inquired whom it represented, but I fear it will be difficult to trace same. Some say it is the tomb of the Archer family—others that it represents the Butler family; the latter is the most likely. I should say its date would be about the fifteenth, or early in the sixteenth century. I would suggest that it is worthy of being removed and set up within the church, which, although small, might be made to contain same; if not, there is room in abundance within the cathedral walls. At all events, let the ruthless hand of despoliation be stayed.

DUBLIN WORKING MEN'S ASSOCIATION.

On Christmas eve the inaugural lecture of the present session of this Association was delivered in the lecture-room, Westland-row, by L. Litton, Esq., M.A.—subject, "The Life of Mahomet the Prophet."

The chair was occupied by Master Litton, who said they met that evening to give their humble aid to advance the interests, and well-being, and happiness of their humbler fellow-man, the working classes. This institution was established not more than two years ago, and its object was to give to the working man rest from his labours, and means of moral and social improvement. For this purpose the rooms in which they were then assembled were open during eight months of the year, from six o'clock until ten each evening, and were supplied with every comfort. A good library had been provided, and from time to time additions were made to it by friends of the institution. All unexceptionable newspapers were supplied, and unexceptionable periodicals—all that could improve the minds of the working men who attended, and raise them, at least mentally, in the scale of humanity. What would man be without education? What would they all be, too, but for the toil and labour of the working man? They ought to be ever grateful to the working man, for to him they are indebted, under God, for all their comforts. What state would they be in but for the working man? He it was who built the houses in which they lived, and provided the beds on which they rested, and placed within their reach all those luxuries which they enjoyed. In gratitude for all this, they who were placed in higher positions ought to seek to return to the working man something for all his labour on their behalf—something beyond the mere payment for work performed. They ought to labour to educate the working men of this country, to improve their minds, and enlighten their understanding. He might say that without education man was nothing. They found in different parts of the world that without education man remained in the same state of darkness and semi-barbarism for ages, little removed from the beasts of the field. Education raised man, and fitted man for the highest position. That institution, as he had mentioned, was formed but two years since, and every working man was admitted from six till ten o'clock each evening during eight months of the year, on payment of one penny a-week. That sum was charged, not for any great revenue which so small a charge produced, but because it was found in everything that men prized that more for which they paid than anything which they received gratuitously. Really it was true that whatever they got for nothing was valued as nothing. Who was there who valued light, or air, or water, or what either was in reality worth? Not one. It was thought right in that institution to charge that small sum of one penny per week, in order to make the more value be set upon the provision which had then been made for benefitting the working men. Although only two years instituted, the numbers had increased sevenfold. Want of education left men open to the craft and deceitfulness of the infidel and the socialist; but gave the working man education and he was prepared to resist these, and to present a bold front to them all, whether infidel, or socialist, or radical. He might mention that that institution was established by a lady, and supported almost entirely by ladies. What institution did we ever hear of, supported by ladies, which ever failed? Was there ever one so supported known to fail? Their warm hearts gave a glow to everything which they supported, their sweet tones lent a charm to all they aided, and their glorious smiles rewarded all who aided them in their work. He then briefly introduced the lecturer for the occasion.

Mr. Litton, after a few introductory remarks (in which he apologised for taking the position which he had been requested to occupy this evening, and having noticed that the institution had been founded about two years ago by Madame Ernestina), proceeded to say that he would on that occasion first call their attention to some of the advantages of working men's associations and institutions with kindred societies, and then take a rapid glance at the life of Mahomet the Prophet, the son of the desert, who, from being a man of humble origin, propagated a creed which came to be believed by 110,000,000 of people, or one-eighth part of the whole human race. In dealing with the first part of this subject he might say that it was but of comparatively recent date that literary classes, and Working Men's Associations, and Mechanics' Institutes, had been formed. But the rapid rise of their own Mechanics' Institute, of the Dublin Athenaeum, and kindred institutions showed how much they were appreciated by the working men of the community. A visit to the large institutions of this class in Manchester, Liverpool, and other towns in England, would show them groups of artisans, and labourers drinking daily from these fountains of knowledge, and the result was that from the hardy sons of toil rose up many to take their stand amongst the foremost ranks in the land. The self-denying efforts of ladies had done much to raise all these institutions, and to benefit the working classes. He could not help remarking here how many of those ladies who had been brought up in refinement and ease, visited

the squalid homes of the poor, and at the risk of disease, and sickness, and death, endeavoured to comfort and raise the degraded ones of mankind. And he felt it to be his duty here to bear his testimony especially to the efforts in this respect, not only in this country, but all over the Continent, of those noble ladies, with many of whom he had become acquainted—he alluded to the Sisters of Charity—who spent their lives and their all in their self-denying work. They were bound, too, to honour such women as Caroline Fry, Hannah More, Florence Nightingale, Emily Faithful, and a host of others, who were nobly labouring for the amelioration of their race. By the establishment of working men's associations and reading-rooms, and all connected with them, they had less of idleness and less of drunkenness amongst the working men—less of the habit of casting blame upon employers, and complaining and repining at their own lot in life—less discontent amongst the working classes, and more endurance. What a noble illustration of this was set by the operatives of Lancashire. In former years they would not have borne all so patiently, and with so much heroism and courage; but they had become better educated, and working men's associations and mechanics' institutes had taught them better things, and the glorious results of such institutions, and the advantages to be derived from educating the working classes of a country were now seen in their patient endurance in this time of distress and severe trial. Working men's rooms are calculated to draw off the working classes from those sources of misery and ruin to so many—the taverns and gin palaces of these countries. . . . He noticed the objections of some in former times to the educating of the masses. They said it would only tend to make working men discontented with their lot, and above their work, but now it was found that this was not so. Some of the noblest men of our day had come from the working men. Such was Hugh Miller, George Stephenson, and a host of others. But yet there were people who said, "Let well enough alone." . . . Having thus referred to the subject of working men's associations, he passed on to sketch the life of Mahomet the Prophet. Mahomet was born at Mecca, but at the age of ten years his mother died, and he was brought up for some time by a nurse. His father died, too, while he was a lad, and he was taken by an uncle, and in after years he managed a caravansary, and sometimes crossed the desert. He ultimately married the widow of one for whom he travelled with a caravansary, he being then about twenty-five years old and she forty years. After this came the time when he lived for a time in a cave, and saw what he said was a vision—the Angel Gabriel standing by him. The lecturer then noticed the events in Mahomet's life from that time onward, and expressed his own opinion that Mahomet, in endeavouring to reform his countrymen from idolatry, was fully alive to his work, and was earnest and sincere in what he did. It was quite incorrect to say "the impostor Mahomet." The founder of Mahomedanism was no impostor. He was in error in many things, but he was not an impostor. He taught much that was superior to all known amongst his countrymen. He did not sanction polygamy, but only limited it. He made it a rule that none should have more than four wives, while before his time they had many more. The character and aim of Mahomet had been blackened in the past when his life and history were not understood, but lately much had been brought to light that showed Mahomet was at least no impostor. The lecturer concluded by reminding those present to aid an association like that in connexion with which they had met that evening.

Major Acton moved a vote of thanks to the lecturer, and said he could fully corroborate that Mahomet was not an impostor, and that Mahomedanism, next to the Christian religion, was the most enlightened; and they might all hope and pray that the day would soon come when the Mahomedans would discharge the crescent, and, raising the Cross, worship Christ.

Mr. Kennedy seconded the motion, which was put, and passed with acclamation.

Some beautiful and instructive dissolving views were then shown through a powerful magic lantern, under Mr. Simonton's directions.

ARCHITECTURAL ASSOCIATION OF LONDON.

On Friday evening week last, the ordinary meeting of this association was held at Conduit-street; Mr. T. Roger Smith in the chair.

The report of the Curators and Librarian commenced by congratulating the members upon the establishment of the lending library, and stated that the necessity for its formation had been urged by the curators in former reports. Nothing, however, was done towards its practical introduction until June last year, when a sub-committee was appointed, which recommended its establishment. The report of the sub-committee was adopted, and the curators were empowered to carry out the same. A voluntary subscription list was opened to meet the expenses, which had a liberal response. A list of rules were prepared and sanctioned by the general committee, and the members were admitted to the use of the library on April 4th of this year. With one exception, viz., the restriction of the loan of the

books for one week, the rules had been found satisfactory. It was suggested that it would be of great advantage to those members who proposed to submit themselves as candidates at the Voluntary Architectural Examinations of the Royal Institute of British Architects, if their library contained the books referred to in the list published by the Institute, as, although the library of the Institute had been made available for intending candidates, still it was considered that it would be a greater convenience if the candidate could study the books at his own residence, which he would be enabled to do if they were in possession of those books. They had no doubt that the subject would shortly be brought before the attention of the Association. Donations were then announced.

Mr. E. L. Paraire then gave his promised lecture upon "Perspective." His object, he said, was to explain in a practical manner the working of perspective. Like most other sciences, it resolved itself into a very limited number of problems. In fact, he might say, there was only one problem that formed the basis of this science. The experience which he had had led him to think there was no very great difficulty connected with the subject; but what might be brought within the reach of the most limited understanding. Upon sketching from nature, Mr. Paraire said there was no very great difficulty connected with that part of perspective further than the adaptation of certain simple mechanical operations to obtain the principal lines. When complicated objects were under consideration, their delineation in perspective was not so much a work of difficulty as a work of time. Several instruments had been invented by which saving of time was effected, but in ordinary subjects it was doubtful whether those instruments which, when employed, required great stability and care, were preferable to simple rules. In sketching from nature it was not necessary to have stationary vanishing points; let the *outline be carefully obtained*, and hereafter a method would be given where more accuracy could be observed. All this was exceedingly simple, and there were few persons who remembered being taught the same thing at school, still the manner in which such was explained, together with other instructions given, appeared to the pupil somewhat inconsistent, inasmuch as the observations were taken by the *short arm* of the pupil, then corrected by the *longer arm* of the master, or the eye was not on the same level, and in consequence the perspective was continually varying. The pupil was not always told the manner to hold his pencil while making his observations, neither how to make certain memoranda on the building as to where the pencil intersects, and, naturally enough, the omission of one of those points materially altered the perspective view—the pupil became disheartened, called it difficult, and finally put it aside. The whole operation was dependent on *fixed principles*, a certain process was required to be carried out; when begun on an object it was not to be altered, and if properly attended to, no other than a satisfactory result could be obtained; even in drawing from life these rules were applicable, and would be found, after trial, of such eminent service, in facilitating the perspective of the figure, that once employed they would always be resorted to. Having obtained the leading vanishing lines, they should mark out the various parts, irrespective of style or detail, which were to be introduced at the last. Mr. Paraire, by the diagrams, placed the *whole theory* and operations connected with the science of perspective clearly and simply before the student; in doing which, many unavoidable repetitions had, he said, occurred. For what was perspective? The geometer would tell you "It is to find the point of intersection of a given line with a given plane." The artist would say, "It is the art of drawing certain objects on a picture." Both are right: for after the geometer has performed his part, and obtained certain points, the artist united those different points by a series of lines, and produced a picture. The science of perspective resolved itself into the repetition of one single problem, viz., to find the intersection of a given line with a given plane.

ROYAL DUBLIN SOCIETY'S SCHOOL OF ART.

THE annual distribution of prizes to the successful pupils of the various classes in the School of Art, in connection with the Royal Dublin Society for the past session, took place on the 23rd ult., in the lecture room of the Society's house, Kildare-street. The Marquis of Kildare, V.P., presided. The prizes were displayed on the table, and the successful pupils were present.

Mr. Edward Wright commenced the proceedings by thanking the noble Marquis for kindly undertaking to distribute the prizes awarded by the inspector appointed by the Committee of the Council on Education at the recent examinations. As many as 74 prizes had been awarded to the pupils of public schools of the metropolis. In explanation of that circumstance, it should be stated that the government had ever been desirous to extend the benefits of art instruction to all classes of the community, and as one means of advancing that object it was made a condition preliminary to appointing a pupil teacher, that that pupil teacher should have instructed at least 200 extern pupils. The Royal Dublin Society had always cordially

co-operated with the Committee of Council on Education in their benevolent and practically useful object, and at the present time, having the prospect of an increase at about 800 extern pupils, they were applying for an additional female teacher. The progressive advance in the proficiency of the pupils might be inferred from the number of the prizes about to be distributed, which were awarded by a perfectly competent and independent government inspector, after an examination held in strict conformity with the rules made by the Committee of the Council on Education. It should also be noticed that the government inspector in his report recognized an improvement in the classes, and remarked that the students who worked exercises in his presence obtained a fair proportion of success. The Committee of Fine Arts regretted that the inspector on this occasion conceived it to be his duty to set aside the works of one entire class of competitors for whom the Society and a large portion of the public felt much sympathy, namely—the female pupils, who on the solicitation of "The Society for Promoting the Employment of Women" were encouraged by the Society last year to commence the art of lithography, with the view of it being beneficial to them in their future struggles in life. It was, however, to be hoped that this inopportune discouragement would not permanently prejudice this effort, and that talent united with industry would surmount such difficulties, and in future secure as well as deserve better success. After some further observations Mr. Wright concluded by giving into the charge of the noble marquis the prizes, 149 in number, for distribution.

The pupils, male and female, were then successively presented to the Marquis of Kildare by Dr. Steele and Mr. MacManus, and they received their prizes from the hands of the marquis amidst the applause of the audience.

Dr. Steele announced that the Taylor prizes for composition and landscape painting had been awarded as follows:—1st prize, £80, to Mr. H. Croly; 2nd prize, £10, to Mr. Parry. The thanks of the meeting were voted by acclamation to the Marquis of Kildare, who in acknowledging the compliment, said he presided with very great pleasure on the occasion. He felt a deep interest in the success of the School of Art. He was gratified to find that the amount of prizes distributed this year far exceeded those of any previous year. He found, too, that the number of pupils in the various classes of the school had of late greatly increased, and these circumstances afforded him sincere pleasure. He trusted that the School of Art would progressively advance in numbers, and in talent and industry, and that its instruction would prove beneficial to all who received it.

DRAINAGE OF FLOODED LANDS.

AT the last meeting of the guardians of Edenderry Union, Edward Ledwich, Esq., J.P., in the chair, the following resolutions were passed unanimously:—

"Resolved—That we, the Board of Guardians of the Poor of Edenderry Union, are of opinion that the bill introduced last session of parliament by Colonel Dickson, to enable the owners of flooded lands to be incorporated and empowered to drain and improve them, would, if passed into law, be a material improvement to this country, by affording a reproductive investment for capital and remunerative employment for the labouring classes, now so much required, after the successive adverse seasons which have occurred; and we earnestly call upon our representatives and upon the executive government to take the necessary steps for passing the bill in the ensuing session, with such modifications as will facilitate its operations."

"Resolved—That we, the Guardians of the Poor of Edenderry Union, are of opinion that in cases where there are insufficient bridges on public roads, which are impediments to the drainage of lands, the public shall bear the expense of their modifications, so as to put the party draining in the same position as if such bridges were not so constructed as to be impediments."

The Clerk was directed to forward copies of the foregoing resolutions to the members for the King's County, County of Kildare, and County of Meath, also to the Chief Secretary for Ireland.

DEPARTMENT OF SCIENCE AND ART.—Mr. Dowling, lecturer on science, in connection with the Department of Science and Art, London, commenced a course of forty lectures on botany, on Thursday evening week, in the Dublin Mechanics' Institute. The lecturer dwelt largely on the value of botany as an educational means of strengthening the observant faculties and developing the reasoning powers. The structure of plants demand a personal observation of facts, and a decided mental effort to draw correct conclusions from the observed facts. In this way the observant faculties are educated and strengthened, and the reasoning powers developed. The course of instruction is essentially practical.

Mr. Hawkshaw, the engineer, is at present examining the works of the Suez Canal, and will, it is thought, soon make a full report.

INSTITUTE OF BRITISH ARCHITECTS.

THE ordinary meeting of this Institute was held on Monday, the 15th ult., Mr. Arthur Ashpitel, V.P., in the chair.

Mr. Charles Fowler, sen., Fellow, on his presenting five perspective views, and exhibiting other drawings illustrating Hungerford Market made some remarks thereon, in the course of which (which had the curious interest of being, as it were, a funeral oration by the author over his own work now being swept away, to be succeeded by the new railway station at Charing-cross,) much valuable information was communicated. The market was built upon the site of the Hungerford House estate, between York House and the Craven estate on the banks of the river. Sir Edward Hungerford, the last of the family, who were of Farleigh Castle in Wiltshire, having squandered his inheritance, in order to retrieve his fortunes, obtained a royal charter to convert his metropolitan seat into a market, 31st Charles II., A.D., 1681. The project for rebuilding the market originated with Sir Thomas Tyrwhitt in 1824, and the designs were approved by King George IV., in the same year. The works were commenced in 1834, and the new market was formally opened on the 2nd July, 1835. The area of the site was 8 a. 19 p., and 3-5th of the whole was occupied by buildings, which were of great strength and durability. Their entire cost was £97,535. As a public enterprise the market proved a failure, and was not able to break the monopoly of the previous principal markets. Still, after paying off in full the debentures and borrowed capital, the dividends or returns to the shareholders amounted to 79 per cent., besides compensations to all the officers and servants of the company.

A paper was then read by the Rev. Mackenzie E. C. Walcott, M.A., F.S.A., "On the Inner Life and Conventional Arrangement of the Monastery of Canterbury," illustrated by numerous plans, but founded principally on the view given by the convent as it existed in the 12th century, by Eadwyn, the monk, now preserved in the library of Trinity College, Cambridge. The Obituary of Canterbury, the Constitutions of Lanfranc, the architects of the buildings, the various notices in the Anglia Sacra, and the works of the local topographers, Somner, Batteley, Gostling and Hasted, supplemented by a personal survey of the buildings enabled Mr. Walcott, to define the uses of the existing remains, and determine the sites of those portions which have been destroyed. The cloisters, lavatory, carols, refectory, dormitories, cellars, chapter-house, infirmary, guest-house, kitchen, bath-house, granaries, almonry, foreign cemetery, Prior's lodgings, gate-house, bell-tower, and water-courses, were all described in detail. Mr. Walcott pointed out the site of the doorway by which Becket passed through to the church on the day of his murder, and showed that the doorway hitherto assigned to that circumstance was, in fact, that leading to the cellars, at the side of which the turn remains, the aperture to which no previous writer has assigned its proper use. He likewise exposed the erroneous description hitherto given of the carols, or monk's studies, insisting upon the importance of consulting the original authorities at first hand in investigations of this nature.

A cordial vote of thanks was given to the author, and a hope expressed that an opportunity might be afforded for considering and discussing hereafter the very important and interesting matter he had brought before the meeting.

PROPOSED IMPROVEMENT AMENDMENT BILL.

At a meeting of the Town Council on the 16th ult., the following report, submitted by the City Surveyor, in September last, to Committee No. 1, was read:—

GENTLEMEN—Last October the council directed your committee to consider the expediency of applying to parliament for an act to enable the corporation to extend the time now limited by law for contracting with the owners of gas works, or other persons, for the supply of gas, or other means of lighting the city, including lamps, &c., &c.; and also to enlarge the powers of the corporation in reference to other contracts and agreements, and otherwise to alter and amend other clauses in the municipal statutes; and also to authorise your committee to direct the publication of the requisite notices in the newspapers.

In pursuance of this direction your committee, on the 26th of October last year, placed the matter in the hands of your law agent, Mr. Smyth, and he consulted your parliamentary agent, Mr. Mugeridge, who prepared a draft notice; and on the 9th of November last Mr. Smith reported to your committee that he had received the notice, but that he considered the time too short to properly mature (as the notices would have to be published in a week from date), and, in consequence, your committee postponed the question until this year.

Your contract with the Hibernian Gas Company for lighting the city will expire on the 5th of January, 1863, and you ought to advertise for tenders for a new contract at least eighteen months before that date, otherwise you can have no competition unless you

have the power for contracting for a longer term than three years; it is therefore evident that no time is now to be lost in obtaining the necessary powers to make contracts for such terms as the corporation may think fit, and such powers I find are now possessed by other public bodies and corporations.

Experience in the working of the improvement act has proved the necessity of getting many clauses amended and new ones inserted, and you greatly require powers such as are possessed by all large cities and towns in England and Scotland for the control and regulation of the erection of new buildings, and the alteration of old buildings, so as to secure public safety, and houses, &c., being destroyed, and life endangered by the reckless proceedings of builders altering houses. Those powers are pressingly wanted in Dublin, as a large proportion of cases reported to me as to houses being in danger of falling, the cause of failure can be traced to the cutting away of chimneys or walls to enlarge shops.

The appointment of one or two officers, called Building Surveyors, to work these powers would lie with the corporation, but entail no new salaries, as they are always paid by fees, to be paid, as scheduled in the building acts, by the parties building or altering houses. There will be no trouble in proposing these building clauses, as they are all comprehended in the London metropolitan building act, from which it would only be necessary to copy them.

(Signed)

PARKE NAVILLE.

September 13, 1862.

THE WINTER GARDEN.

THE following circular has been addressed to (we believe) all the architects practising in Ireland, and we doubt not that it will ensure a large attendance at the proposed meeting for the discussion of important questions:—

"Some of the architects who competed for the Dublin Exhibition Palace and Winter Garden purpose holding a Meeting, on Saturday next, 8th January, 1863, at the Antient Concert Rooms, Great Brunswick-street, to take into consideration the necessity that exists for a collective expression of opinion, respecting the extraordinary course adopted towards the competitors by the directory of the above project; and to take such steps—either by re-organising the Irish Institute of Architects, or forming an Architectural Association—as shall in future avert the possibility of a recurrence of such results as those arising from the Winter Garden competition.

"Your co-operation in this movement is requested, as it is but too evident that some bond of union is absolutely requisite to protect the profession from inroads so fraught with injustice and injury to all its members.

"Chair to be taken at Two o'clock.—Signed—John M'Curdy, E. H. Carson, J. Rawson Carroll."

CHROMO-LITHOGRAPHY IN BELFAST.

MESSRS. Ward and Co. have just issued specimens of chromo-lithography, which we cannot praise too highly. They comprise a view of Carrickfergus Castle and a view of Dunluce Castle. Both these pieces are taken from water-colours by D. F. Murphy, and the truthfulness and accuracy with which they are executed leaves nothing to be desired in point of artistic excellence. The great difficulty to be overcome in chromo-lithography is the combined roughness and obscurity to which the productions of the art, even in the best hands, are liable. In the specimens before us there is hardly a trace of this ordinary defect visible. The bold frontage of Carrickfergus Castle is clearly defined, and the numerous figures in the foreground are brought out with a distinctness of outline and a mellowness of colouring in the costume that renders the grouping quite vivid and natural. The cloud tints, so difficult even on canvas, seem here charmingly pencilled off, and in both pictures there is a softness of hue and a blending of shades that imparts to them a peculiar and almost characteristic attraction for the eye. We (*Ulster Observer*) have rarely seen better specimens of this truly difficult art than the ones before us, and it is highly creditable to the taste and ability of the Messrs. Ward to have produced them.

The authorities at Naples have determined to put an end to the impositions to which foreigners who wish to see the curiosities of that city and neighbourhood, particularly the ruins of Pompeii and Herculaneum, have been long subjected. An order has been issued that for the future the guides shall only charge two francs for each person, and one for each child; and any infraction of this order will be severely punished.

Mr. D. C. Ferguson, architect, has been commissioned to report on the building arrangements generally of the Coombe Lying-in Hospital, with a view to improvements in the dispensary, and extended accommodation.

NEW PATENTS.

List of Letters Patent which passed the Great Seal in December, 1862:—

J. Biers, for "Improvements in shoes for horses and other animals."

A. H. Perry, for "Improvements in fastenings for, and in the method of, fastening together or securing railway chains and sleepers, and for other similar purposes."

J. Rowell, for "Improvements in pillars and apparatus for straining wire."

J. W. Taylor, for "Improvements in valves and in means for regulating and indicating the flow and pressure of fluids."

F. G. Grice, for "An improvement or improvements in the manufacture of nuts for screwed bolts, and in machinery to be employed in the said manufacture."

J. Bell, for "Improvements in the fastenings for railway chains."

A. J. Adams, for "An improved method of rifling firearms."

J. Lovegrove, for "Improvements in apparatus for inspection of small sewers and drains, and for facilitating the removal of obstructions therein."

A. A. Loenard, for "A new and improved cement or mastic for making joints of steam, water, or gas pipes or chambers."

W. Wighton, for "Improvements in apparatus for regulating watches and other time-keepers."

W. Norman, for "Improvements in tables or drawers or other sliding receptacles."

H. Ledger, for "An improved substitute for tombstones, tablets, monuments, and other similar memorials, or commemorative records."

J. Parkes, for "Improvements in gas lanterns."

A. Gilbey, for "Improvements in apparatus for washing and cleansing bottles."

W. E. Newton, for "Improvements in mills for grinding."

Notes of New Works.

Sundry works are to be executed at the church of Derrybruske, Co. Fermanagh, under the direction of the architects to the Ecclesiastical Commissioners.

Messrs. Wardrop and Son have been declared contractors for the intended new works at Monaghan gaol.

The Commissioners of Control for Lunatic Asylums require another contractor to complete the asylum in course of erection at Castlebar; the former contractor being relieved from his undertaking chiefly on account of ill health.

The Earl of Longford is about erecting farm buildings at Ardagh, Longford.

Three new houses are to be erected at Bray, according to plans by Mr. W. G. Murray, architect.

Miscellaneous.

BARON ROTHSCHILD'S CHATEAU OF FERRIERES.—Of this magnificent building and the recent visit of the Emperor of the French to its Cræsean lord we collect the following particulars from a contemporary:—Arrived at the chateau, which is built entirely in the style of an English mansion, and is the work of Sir Joseph Paxton, the Emperor paused to examine the construction of the entrance-hall, which answers to the vestibule of the French chateau, with the difference that, in English architecture, the hall is carried to the roof of the building, and is lighted by a skylight, while the French fashion places the first landing of the staircase immediately over the vestibule. The Emperor was so well pleased with the grandiose effects of the hall, that he is said to have expressed his regret that he had not thought of this improvement while restoring the pavilion at Tuileries, which has been lately thrown down, and it is now fast building up again. It is in this piece of the chateau that the great treasures of art and *vertu*, amassed by the baron during his long autocracy over the different sections of the world, have been deposited. Besides the library, which, though small, contains some of the most valuable works known, principally of authors of the Middle Ages, cabinets, containing Italian classical remains—gems of the greatest value—antique gold medals, cameos, and enamels are placed round the walls, while paintings by the old masters—particularly one or two of the *chef-d'œuvre* of Velasquez—which are hung above, are said to represent a value of several millions. The chamber into which the Emperor was ushered on mounting the stairs greatly excited his attention. It is a *salle-des-gardes*, completely decorated from some ancient model in one of the old castles of Scotland. Then came the drawingroom, from the windows, by *échappes* artistically managed, a view of the whole country round is obtained. The banquetting hall is modelled after that of the Knights of the Garter at Windsor Castle. Of the Baron's plate

exhibited therein on the occasion in question, it is related that it has long been the custom of Baron James to add to his stock of plate at the birth of every child in his family. The number of his children and grandchildren may be calculated by the pieces of ornamental plate, all of the highest value, which adorned the long table. The Sevres china is unique. It is the famous set once belonging to Louis Seize—the one which the Emperor Joseph II. admired so highly that he exclaimed, when it was placed upon the table at Versailles, "Even to see this service the journey from Vienna would not be considered too long or wearisome." Each plate is valued at fifty guineas, being painted by Boucher, and signed by his own hand. The "Triumph of Mordecai," which adorns the great *salon* of Ferrieres, and is one of the finest works of the sixteenth century, has nothing to compare in gorgeousness of detail with the reception given to Napoleon III. by the financier Rothschild; and the festival ordained by Fouquet for the entertainment of the Grand Monarque fades into insignificance before it; and truly, when we behold the assemblage of grandeur and nobility gathered round the table in the great banquetting hall, we could not help repeating the words which, in black letter, issue in a scroll from the open mouth of the herald leading the steed on which Mordecai is seated, as represented in the panel facing the windows in the drawingroom—"Thus shall it be with the man whom the king delighted to honour."

The Lord Lieutenant, on the occasion of his visit to Belfast, last month, to assist at the inauguration of the new Ulster Hall, was the guest of Charles Lanyon, Esq., (ex Mayor) J.P., architect and C.E., at "the Abbey."

REVENUE RAISED IN IRELAND.—The amount of revenue raised in Ireland in 1799 was 3,131,833*l.*, the population then being 5,395,456 persons; in 1821 the population had increased to 6,801,827, and the revenue had increased to 3,999,924*l.* Between 1821 and 1841 the population had again increased, but the public revenue remained about the same, the amount raised in Ireland in 1841 being 3,969,633*l.* I shall presently glance at the amount of revenue which Ireland should pay under the articles of Union, but I shall first compare the amounts levied in the five years from 1842 to 1846, and in the five years from 1857 to 1861. The amount raised in the former period was 19,419,783*l.*, and in the latter period 33,496,860*l.*, the increase being over two and a-half millions per annum.

IRISH REVENUE.							
1842	...	...	£3,652,491	1857	...	...	6,581,520
1843	...	...	3,574,647	1858	...	...	7,361,023
1844	...	...	3,845,200	1859	...	...	6,419,223
1845	...	...	4,096,864	1860	...	...	6,578,814
1846	...	...	4,339,821	1861	...	...	6,546,280
Total in 5 years...19,419,083				Total in 5 years...33,486,800			

The taxation in Great Britain in 1841 was 42*s.* per head; in 1851, 46*s.* per head; and in 1861, 48*s.* 6*d.* per head. The increase between 1841 and 1861 was 6*s.* 6*d.* per head, or 13 per cent. The taxation in Ireland in 1841 was 8*s.* 8*d.* per head; in 1851, 11*s.* 2*d.* per head; and in 1861, 22*s.* 8*d.* per head; the increase in the twenty years being 150 per cent., or more than ten times the rate of England. Owing to the fiscal policy of Mr. Gladstone, the increase in the taxation of Ireland has been nearly doubled in the past ten years, but the ratio in proportion to the population has been actually doubled. In Great Britain the actual increase has been 8 per cent., but in proportion to the population it has been only 7 per cent.—"How Ireland may be Saved," by Joseph Fisher.

Mr. J. J. LYONS, of 26, Lower Gardiner-street, Dublin, Architect, has been appointed Agent for Ireland for Messrs. Clark and Co., of Gate-street, Lincoln's-Inn-fields, London, the eminent patentees and manufacturers of revolving shutters, brass sashes, stall board plates, &c., &c. A model of Messrs. Clark's newest patent, which is remarkable for its simplicity (all gearing being dispensed with), may be seen, and price-books obtained, at Mr. Lyons' office. Parties can have estimates from Mr. Lyons by forwarding particulars and tracings of the situations to which it is proposed to adapt the shutters. These excellent shutters have been fitted on two fronts of Messrs. Kinahan's extensive establishment in Westmoreland-street and Burgh-quarry, and are now being prepared for the Colonial Assurance Company's new offices in Sackville-street (to the order of Mr. Wm. G. Murray, architect, Mr. Beardwood, builder), as well as for other places in Ireland.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MABBOT-STREET." All other Communications should be addressed to the Editor, 26, LOWER GARDINER-STREET.

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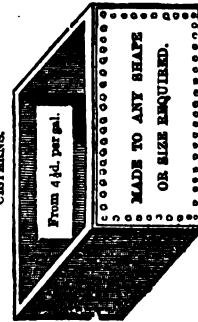
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